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LAIDLAW-DUNKIN CONCENTRATED ANTIBODY (HYPER-IMMUNE SERUM) IN THE TREATMENT OF NATURALLY-OCCURRING CANINE DISTEMPER

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The following is a report of 31 cases of disease, diagnosed clinically as canine distemper, and treated with Laidlaw-Dunkin concentrated distemper antibody.

The cases comprise animals presented for treatment at the Poor Outpatients' Clinique of the Royal Veterinary College. The use of the agent was confined, in the large majority of cases, to animals under eight months of age, it being our experience that it is in the immature animal that, despite medicinal treatment and good nursing, the mortality is exceedingly high. In addition, to ascertain the value of the agent as a curative, we felt that it would be wiser not to use it in mature animals in which the chances of a natural recovery are reasonable.

In five cases we departed from this rule and used the serum on older dogs. They were all cases in which the animal was seriously ill at the time of examination, and in which prognosis was grave.

Laidlaw and Dunkin have already reported that to be of value in the treatment of the disease, serum must be used early. From a clinical standpoint, however, questions will arise as to accuracy of diagnosis, for the condition which is regarded as typical distemper, is due, for the greater part, to " secondary invaders," and may not be seen until the condition is advanced. By this time the use of a specific remedy may be of little or no value.

In this respect the clinician must be guided by his experience, and ours is, that in a young and susceptible animal the sudden onset of pyrexia and malaise accompanied by a loss of appetite, some sickness and diarrhœa, must be regarded as ample evidence of distemper, for it is at this stage that the use of serum will be of value.

Unfortunately, in the class of practice in which we engage, it is usual to find that the animal has been ill for some weeks before it is presented for treatment, and it is for this reason that a number of the cases recorded had been ill for a long time before serum treatment was resorted to.

It is not suggested that this work in any way complies with the postulates of a scientific experiment, for in no case was our diagnosis confirmed by biological methods, and thus in some of the cases its accuracy may be questioned. At the same time it is felt that these cases were encountered under conditions identical with those in which the general practitioner has to combat this disease, and it is for his information that these notes are intended.

In the early cases the dose of concentrated antibody given was 10 c.cs., but with later cases, as we were using batches of much higher potency, it was reduced, in some cases, as low as 2·5 c.cs. (Messrs. Laidlaw and Dunkin had told us that batches of concentrated antibody, 11, 13 and 14, possessed an antibody concentration four times as great as that of ordinary immune serum.)

In some of the cases we may have used too small a dose, but as the supply of the agent was always limited, we felt it was highly desirous to make it go as far as possible.

Administration was subcutaneous in the flank after diluting the serum with an equal quantity of sterile normal saline.

* * * * *

SUMMARY GROUP "A"

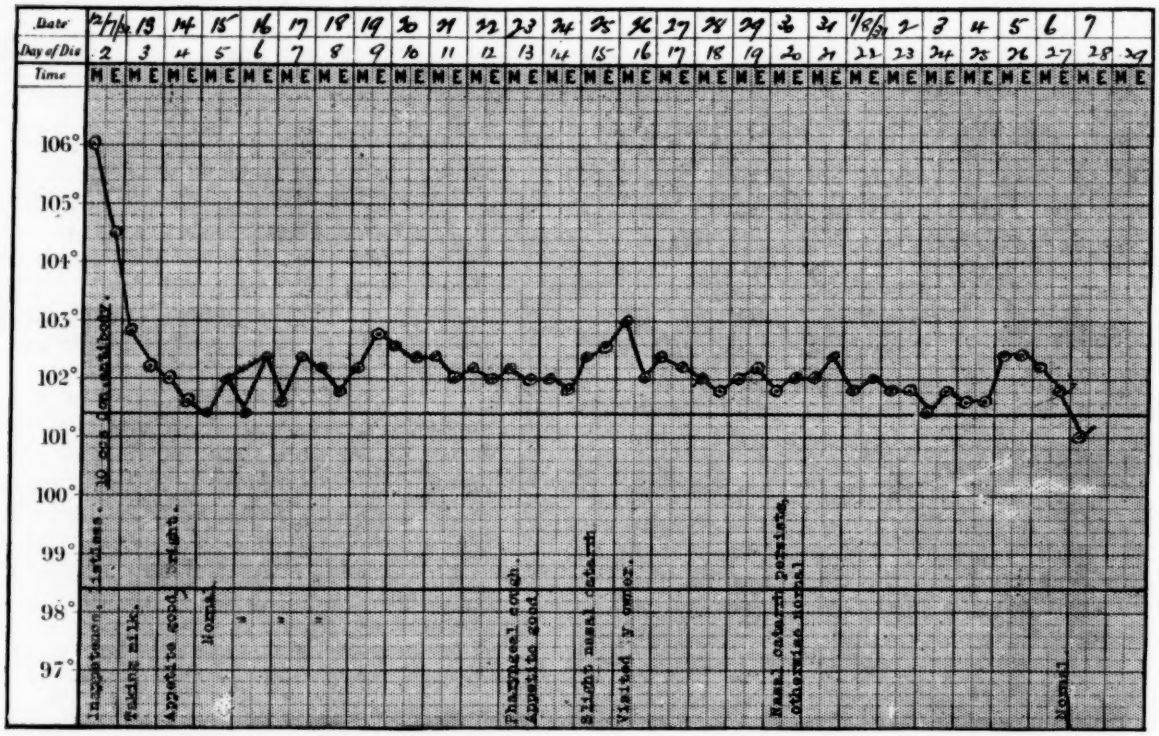
Case No.	Age	Days after onset of symptoms con-anti-body given	Result	Remarks
1	5 m.	1	Recovered.	
2	4½ m.	4	Recovered.	
3	4 m.	2	Recovered.	
11	5 m.	2	Recovered.	
14	17 m.	4	Recovered.	2 doses given.
20	13 m.	4	Recovered.	
21	7 m.	2	Recovered.	
22	16 m.	3	Recovered.	Diagnosis questionable.
24	5 m.	7	Recovered.	Diagnosis questionable.
26	5 m.	2	Recovered.	
27	5½ m.	4	Recovered.	
28	5½ m.	4	Recovered.	
31	3 m.	5	Recovered.	
32	5 m.	5	Died.	
29	8 m.	5	Recovered.	Treated at home.
30	4 m.	7	Recovered.	Treated at home.

Treated.	Recoveries.	Failures.
16	15*	1

*Diagnosis questionable in 2 cases (Nos. 22 and 24).

GROUP A. IN WHICH SERUM WAS ADMINISTERED WITHIN SEVEN DAYS OF ONSET OF SYMPTOMS.

CASE no. 1 ALSATIAN BITCH Age 5 MONTHS Admitted 12. 7. 31

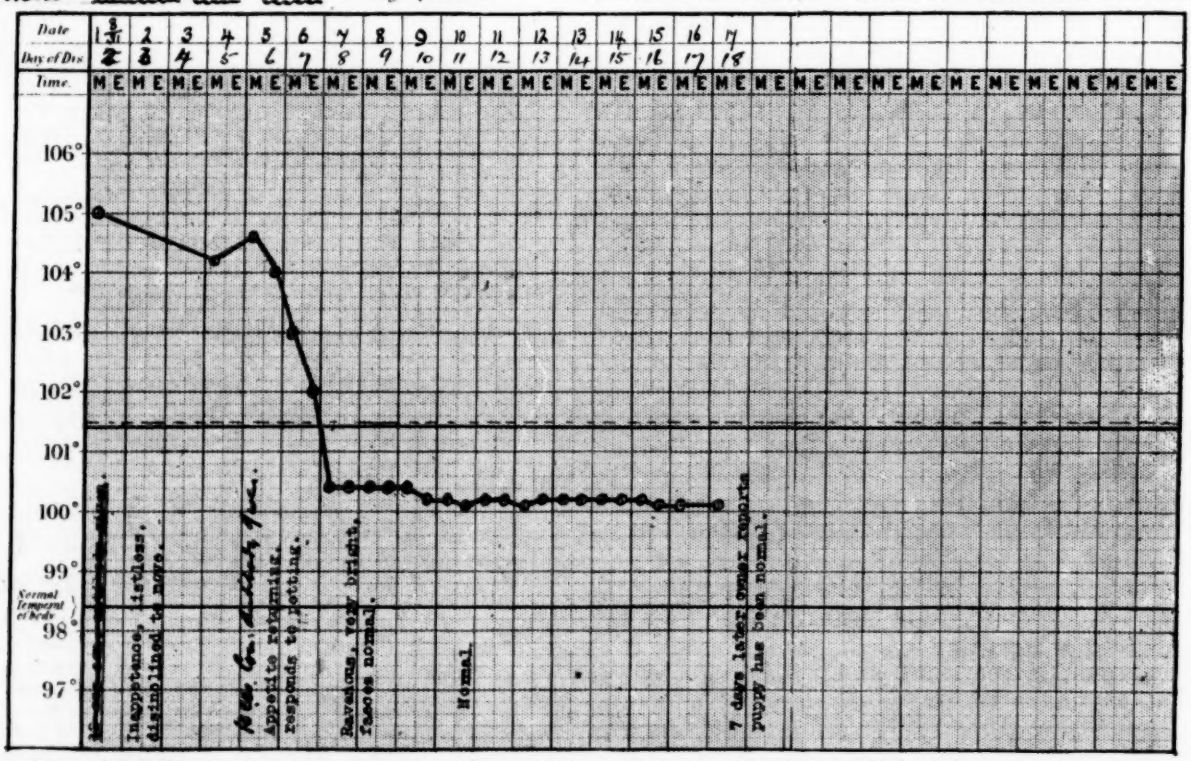


History.—On July 7th, this animal was presented for the removal of dewclaws. Prior to receiving attention it came into direct contact with a typical case of distemper. Four days later illness commenced. Symptoms comprised—inappetence, malaise. Temperature 106°.

Remarks.—During the time the animal was in hospital under treatment it was placed in a distemper ward and on several occasions came in contact with typical cases. But for the development of a pharyngeal cough and some slight nasal catarrh, the animal remained well. Growth was rapid and tooth development normal. This was our first use of concentrated antibody in the treatment of distemper and the result was highly satisfactory.

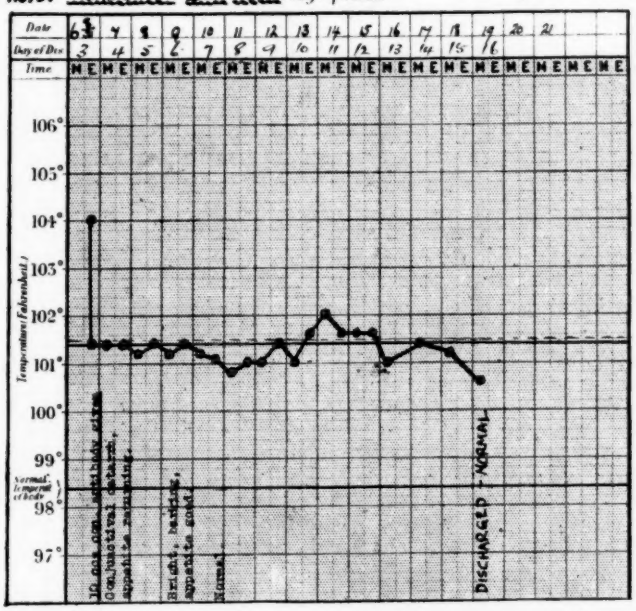
March 2nd, 1932.—Animal made perfect recovery.

CASE no. 2 TERRIER BITCH PUPPY Age 4½ MONTHS WEIGHT 6 lbs. Admitted 1. 8. 31



History.—Onset of illness on August 1st. Inappetence, dulness and listlessness, temperature 105°. On August 5th there being no change in the condition, concentrated antibody was administered. From this point the puppy speedily recovered. In contact with 3, 4 and 5.

CASE no. 3. Pomeranian Dog Puppy Age 4 Months. Weight 5 lbs

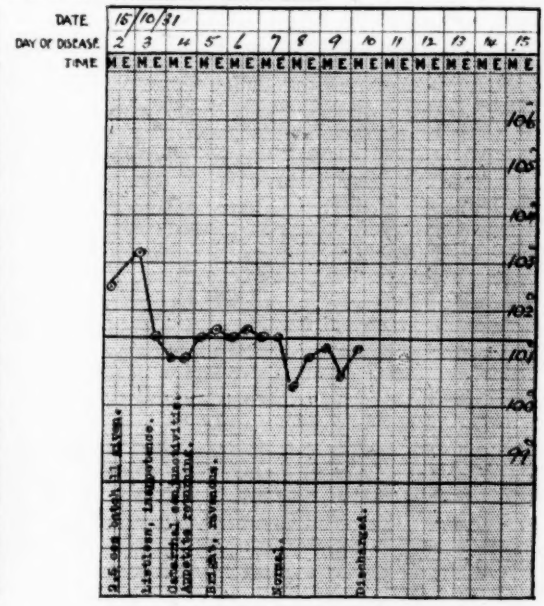


History.—On July 28th this animal was treated in this Institution for ascaridæ. On August 6th it was presented with the history that it had been ill for 48 hours, the symptoms being malaise, inappetence, diarrhœa and a catarrhal conjunctivitis. Temperature 104°. Con. antibody was given.

The animal was under observation 14 days. It came into contact with Cases 4 and 5. It increased in weight half lb.

March 3rd, 1932.—Complete recovery.

CASE no. 11 Mongrel Puppy, Male Age 5 Months. Weight 15 lbs



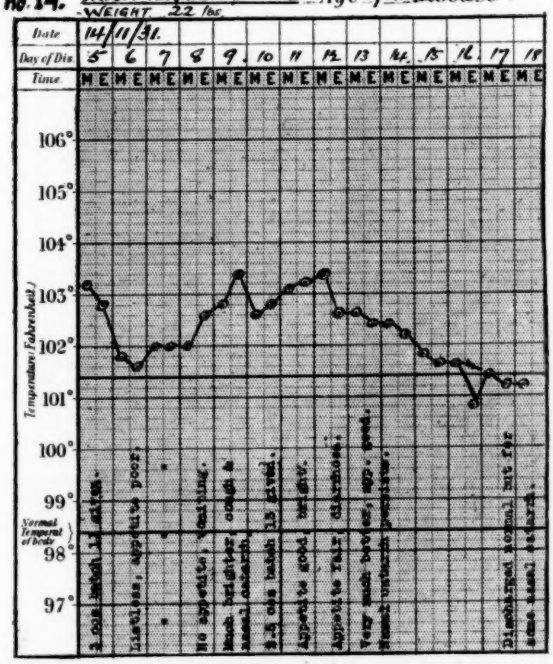
History.—October 15th. Illness of 24 hours. No appetite, listless and shivering. Sick on three occasions. Temperature 102·5°. Examination reveals nothing. Diagnosis uncertain and owner told to return with puppy the following day.

October 16th.—No change but the onset of catarrhal conjunctivitis. Temperature 103·2°. Con. antibody given.

Remarks.—This case rapidly recovered. It was kept under observation eight days, during which time it came into contact with Cases No. 10 and 12.

Made complete recovery, but was stolen at the end of November.

CASE no. 14. Irish Terrier Male Age 17 M. Diagnosis. Weight 22 lbs



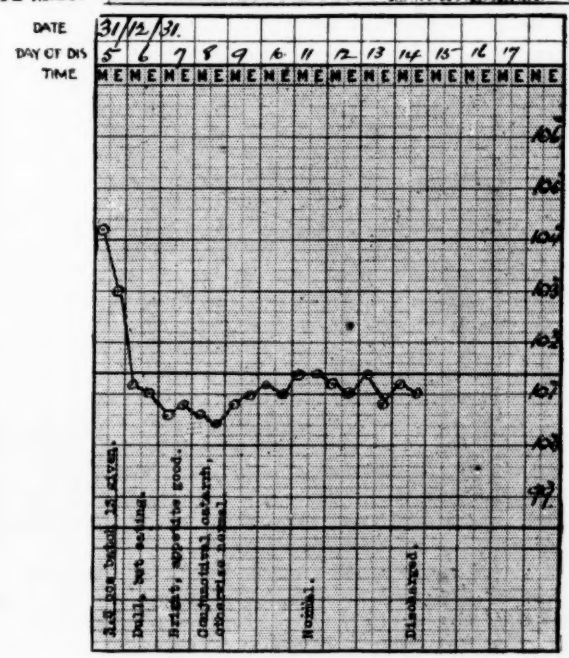
History.—November 11th. Has been ill for four days. Complete inappetence with sickness and diarrhœa. Malaise. During the past 24 hours has developed a cough. Temperature 103·2°. Eyes and nostrils "clean."

Diagnosis.—Distemper, con. antibody administered.

Remarks.—This is the first occasion in which we have adopted serum treatment in a mature animal. Although the case terminated favourably we feel that the outcome might have been the same had good nursing alone been adopted.

March 3rd, 1932.—Made complete recovery.

CASE no. 20. Brown Mongrel, Male, Age 13 Months. Weight 15 lbs



History.—December 31st. The animal has been ill for four days.

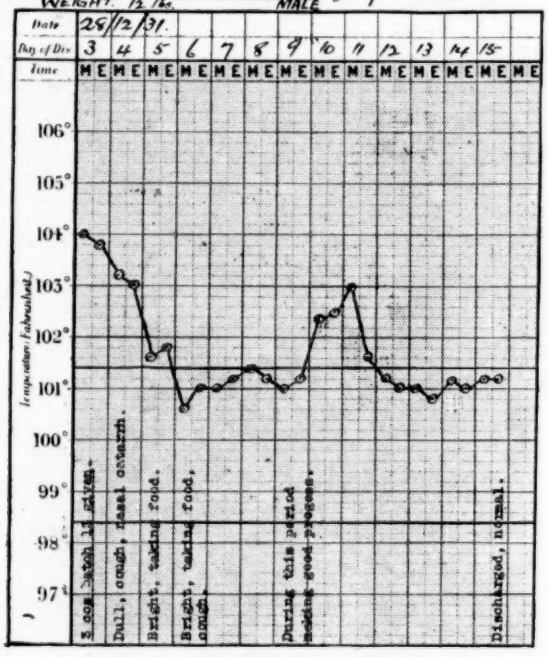
Symptoms.—Malaise, inappetence, diarrhœa, a cough, conjunctival catarrh. Temperature 104·2°.

Diagnosis.—Distemper, con. antibody administered.

Remarks.—This is another case of a mature animal. In this case, however, the animal speedily recovered without further complication after the use of serum.

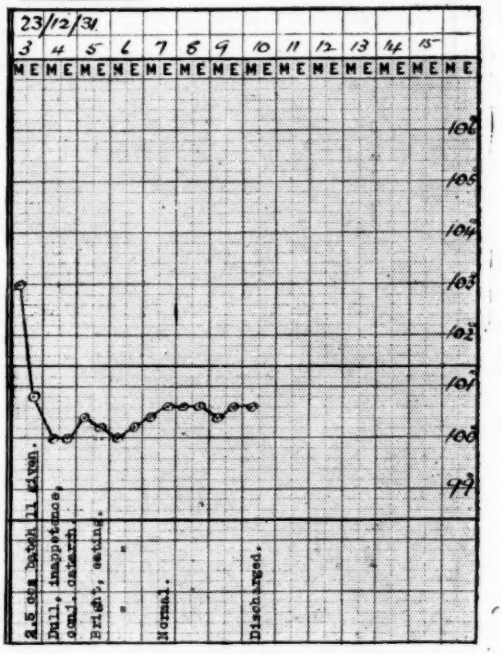
In contact with 21. March 4th, 1932. Made complete recovery.

CASE no 21 MONGREL BLACK PUP Age 7m Disease
WEIGHT 12 lbs. MALE



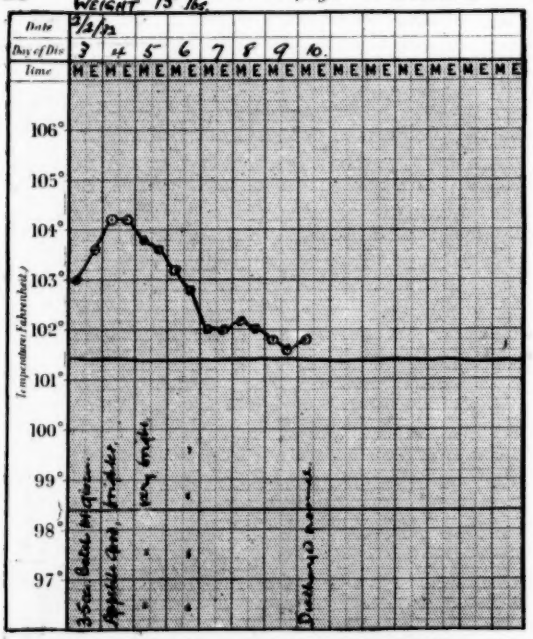
History.—December 23th. Illness of 48 hours. *Symptoms.*—Malaise, inappetence, pharyngeal cough, gums inflamed, teeth furred. Temperature 104°. *Diagnosis.*—Distemper, con. antibody administered. *Remarks.*—During the following 48 hours nasal catarrh commenced and the case took on the appearance of typical distemper. The animal, however, rapidly recovered and was discharged twelve days later cured.

CASE no. 22 PEKE' MALE AGE. 16 MONTHS. WEIGHT 13½ LBS



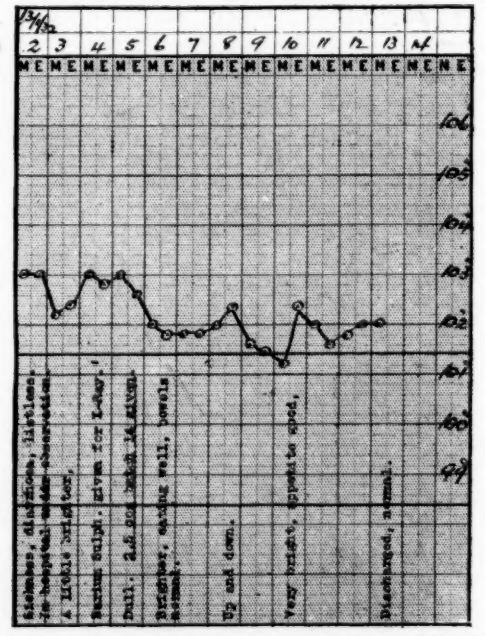
History.—December 23rd. Animal has been off colour for 48 hours (no history of previous illness). *Symptoms.*—Inappetence, listless, has vomited on three occasions. Muco-purulent discharge from eyes. Temperature 103°.
Diagnosis.—Distemper, con. antibody administered.
Remarks.—The diagnosis may be questioned in this case. 48 hours after the administration of serum the animal became normal and remained so during the period under observation.
March 4th, 1932.—Complete recovery.

CASE no 26 BLACK MONGREL PUPPY Age 5m Disease
WEIGHT 15 lbs.



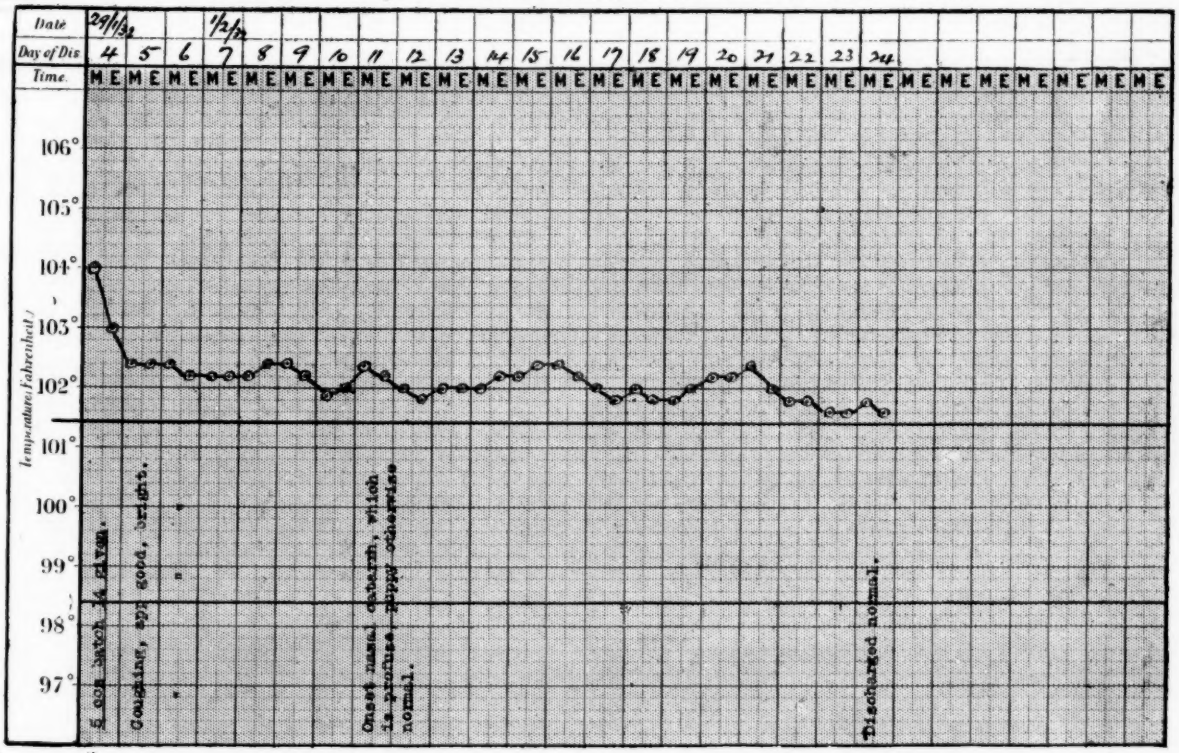
History.—February 2nd. For the past 48 hours puppy dull and listless, inappetence, occasional sickness. Temperature 104°.
Diagnosis.—Distemper, 3·5 c.cs. batch 14 given.
Remarks.—From this point the puppy made a speedy recovery.
In contact with 27 and 28.
March 2nd, 1932. Made complete recovery.

CASE no. 24 FOX-TERRIER PUPPY MALE. Admitted 5 MONTHS 10½ lbs



History.—January 13th. Puppy has been ill for 24 hours. *Symptoms.*—Profuse diarrhœa, occasional vomition, inappetence, dull. Temperature 103°. Admitted to hospital for observation.
January 14th and 15th.—A little improvement, brighter and taking food.
January 16th.—Recurrence of sickness and diarrhœa.
January 18th.—Barium sulphate meal given for X-ray. Radiograph reveals nothing.
January 19th.—There being no improvement, 2·5 c.cs. con. antibody batch 14 given. From this point the puppy slowly recovered. The case was never typical and diagnosis may be questioned. It was in contact with 25.

CASE no. 27 RED SETTER DOG Age 5½m. ~~Disease~~ WEIGHT 35½ LBS.

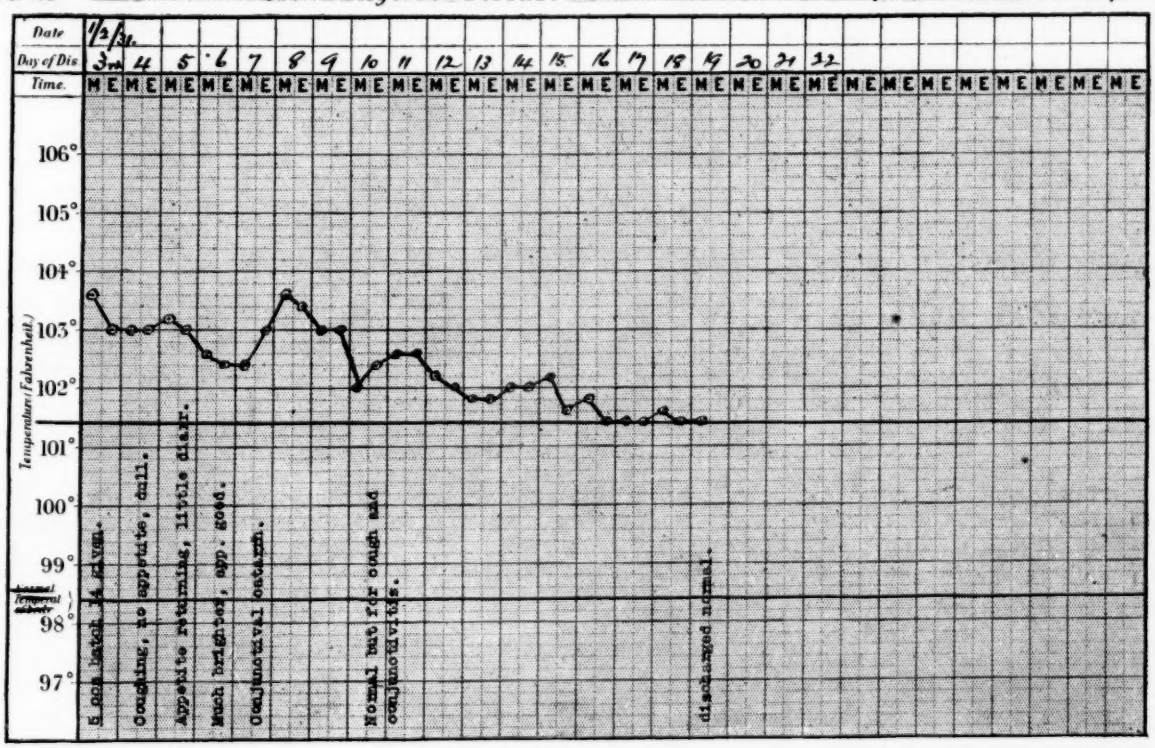

Date
29/1/32
1/2/32
Day of Dis
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Time.
M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Temperature (Fahrenheit)
5 cc. batch 14 given.
Coughing, app. good, bright.
Onset nasal catarrh, which is profuse. Appr. otherwise normal.
Discharged normal.

History.—January 29th. Has been off colour four days, appetite only fair, occasional sickness. Temperature 104°.

Diagnosis.—Distemper, 5 c.cs. batch 14 given. (The litter sister of this animal is in contact. Up to the present she is normal but owner instructed to bring her to the College if she shows signs of illness, see Case 28).

Remarks.—As will be seen from the chart, the temperature fell during the next 24 hours, and although the puppy developed typical distemper, it did not rise again. During the three weeks the animal was under observation it lost two lbs. in weight. It was inspected a week after discharge. The owner reported the animal normal. Increase in weight 4 lbs.

CASE no. 28 RED SETTER BITCH Age 5½m. ~~Disease~~ LITTER SISTER OF No. 27. Admitted Weight 40 lb.


Date
1/2/32
Day of Dis
3rd 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
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M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Temperature (Fahrenheit)
Normal temperature above
5 cc. batch 14 given.
Coughing, no appetite, dull.
Appetite returning, little diarr.
Much brighter, app. good.
Conjunctival catarrh.
Normal but for cough and conjunctivitis.
discharged normal.

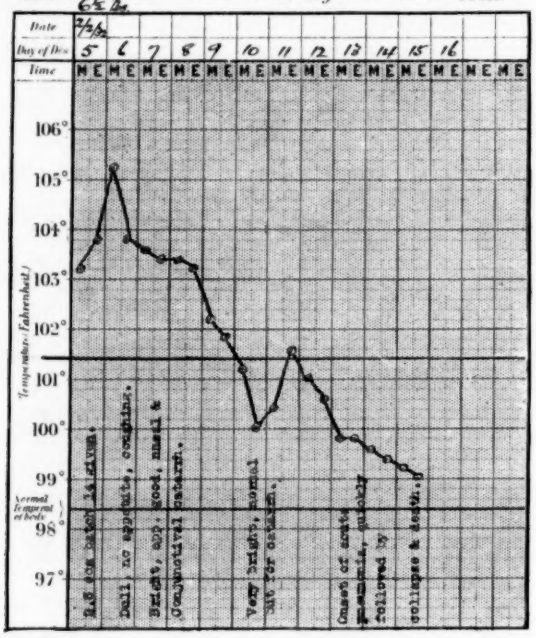
History.—The bitch developed symptoms two days later. They comprised frequent sickness, complete loss of appetite, a cough. Temperature 103·6°.

Diagnosis.—Distemper, 5 c.cs. batch 14 given.

Remarks.—This animal made similar, rapid progress. The temperature rose to 103·6° on one occasion five days after admission; otherwise did well. These two case (27 and 28) pay tribute to the value of a specific remedy in the treatment of distemper. I feel there cannot be much doubt regarding the accuracy of diagnosis, and there is no type of animal which fares so badly with distemper as the 5½ months puppy of the setter class.

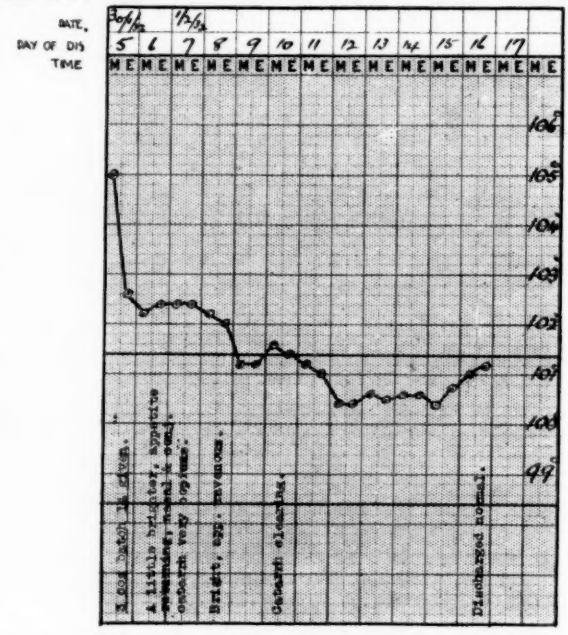
XUM

CASE no 32 ABERDEEN TERRIER DOG Age 5m WEIGHT 6½ LBS.



History.—February 2nd. This puppy was exposed for sale in a dog shop for ten days. Two days after removal from the shop illness commenced.
Symptoms.—Appetite poor, very listless, diarrhœa and a husky cough. Temperature 103·2° (examined five days after the onset of symptoms).
Diagnosis.—Distemper, 2·5 c.cs. batch 14 given.
Remarks.—The symptoms quickly became those of typical distemper. It appeared to be recovering for six days, then an acute pneumonia set in, which proved fatal in 48 hours.
It is of interest that nervous symptoms did not supervene in this case. In all our other cases which have terminated fatally nervous symptoms have set in. One feels that although distemper infection was undoubtedly the predisposing factor, it was not directly associated with the puppy's death.

CASE no 31 WHITE MONGREL BITCH AGE 11 WEEKS. WEIGHT 7½ LBS



History.—January 30th. This puppy was purchased at a dog's home on January 26th. It has been ill ever since. *Symptoms.*—Inappetence, profuse diarrhœa, malaise, a cough. Temperature 105°.
Diagnosis—Distemper, prognosis grave. 3 c.cs. batch 14 given.
Remarks.—The temperature fell in 24 hours. The case became one of typical distemper, but the puppy rapidly recovered. Without the aid of serum one feels sure this case would have rapidly terminated fatally.

Case No. 29. (February 11th. Treated at Home.)

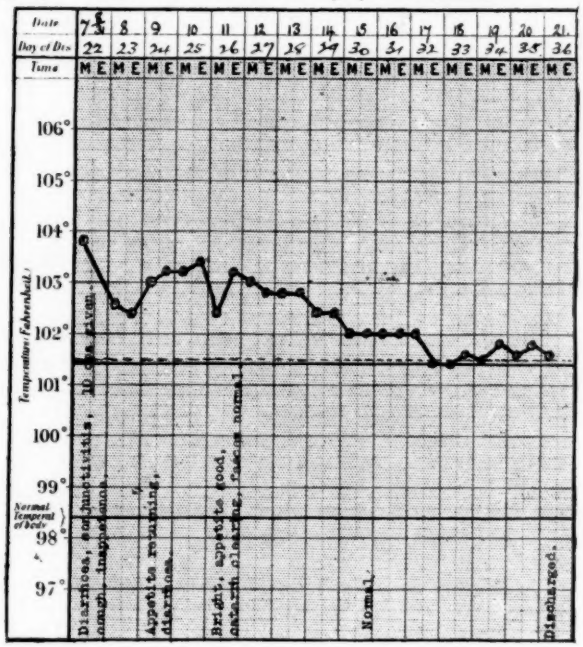
Subject.—Eight months Golden Retriever dog puppy, weight 56 lbs.
History.—For the past five days has had a cough which the owner attributes to swallowing a feather. Twice sick, some diarrhœa. Appetite good, bright. Temperature 103°.
Diagnosis.—Distemper, 5 c.cs. concentrated antibody batch 14 given.
Owner's report.—February 18th.—During past week, there has been a copious, blood tinged nasal discharge; also occasional bouts of sickness. The puppy remains very bright, and the appetite is good.
February 25th.—Nasal catarrh persists, still occasional vomiting of froth, appetite good, puppy bright and playful.
March 5th.—Nasal catarrh causes choking; temperatures have been taken, varying between 101° and 102°. Appetite excellent very bright.
March 10th.—Temperature normal during week. Very bright and eating well.

Case No. 30. (February 6th, 1932. Treated at Home).

Subject.—Four months wire-haired terrier bitch puppy.
History.—Has been ill for seven days. Complete inappetence, malaise, cough, nasal and conjunctival catarrh. Temperature 104°.
Diagnosis.—Distemper. Prognosis grave. 3·5 c.cs. batch 14 given. (An 18 months terrier bitch, the dam, inspected at the same time, showing typical symptoms of distemper. Treated medicinally.)
Owner's report.—Second day.—Discharge getting thinner
Third day.—Appetite returning and commencing to play.
Fourth day.—With the exception of some sneezing is as fit and as lively as can be.
Subsequent report.—March 12th, 1932.—Puppy made complete recovery from this point and is now fit and well.

GROUP B. IN WHICH THE DISEASE HAD BEEN IN EXISTENCE FOR LONGER THAN SEVEN DAYS WHEN SERUM TREATMENT WAS ADOPTED.

CASE no 4. Alsatian Bitch Puppy Age 4 Months Admitted 7-8-31.



History.—July 17th. Animal first presented with the history of an illness of 24 hours. *Symptoms.*—Listlessness, inappetence, vomiting. Temperature 105°. On this history the case was diagnosed as distemper, but no serum was available. *Prognosis* guarded. Medicines prescribed.

August 7th.—Owner reports that the puppy held its own for the first ten days, but for the past five days there has been complete inappetence, profuse diarrhœa, catarrhal conjunctivitis and a distressing cough. Temperature 103·8°. Dog admitted to hospital and 10 c.cs. serum given.

Remarks.—The animal made an apparent rapid recovery and was discharged on February 21st.

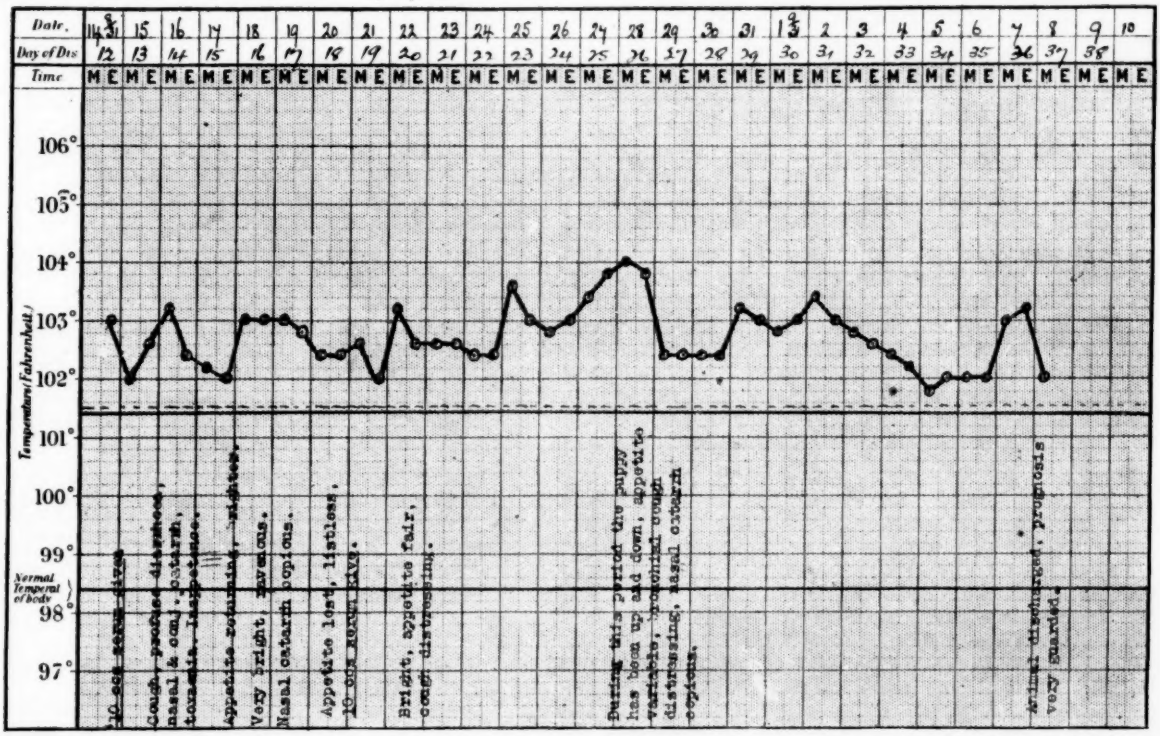
February 28th.—Owner reports that during the previous week animal perfectly normal.

I have a note in my case book to the effect that under ordinary methods of treatment, one would expect the onset of nervous symptoms in this case at about the twenty-first day. This is of interest because of the following :—

September 18th. Animal in perfect health, has grown considerably, but for the past seven days has had a choreic jerking of the right shoulder muscles.

October 9th.—No change in the chorea despite treatment with arsenicals. Con. antibody in this case was used 22 days after the onset of symptoms ; it appeared to cause a rapid recovery. Whether or not it saved the animal's life one cannot say ; it did not overcome the tendency to the onset of a chronic nervous disease.

CASE no. 5 Griffon Bitch Puppy. Age 4 Months. Weight 3½ lbs. Admitted 14-8-31.



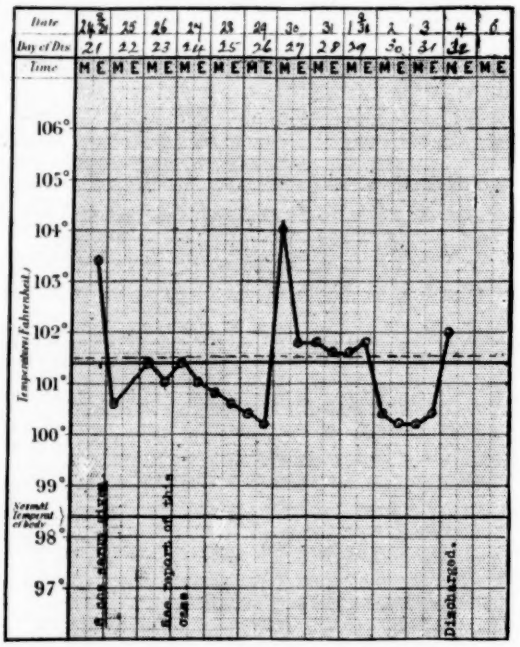
History.—This puppy and its litter brother have been ill for twelve days with typical distemper contracted at a dog shop. The brother, which did not receive serum treatment, died three days later.

August 14th. At the time of examination this puppy was very ill. An extensive catarrhal bronchitis with a distressing cough. Inappetence, considerable toxæmia, no response to petting, temperature 103°. 10 c.cs. serum given.

There was a very rapid improvement, the animal became bright and took food eagerly, until the 19th, when the appetite was again lost. A second dose of 10 c.cs. serum was given. The response to this was not so spectacular. The animal continued up and down until discharged at the owner's request on September 8th. This animal was so sodden with complications that it was remarkable that it survived at all.

The ultimate result of this case is not known.

CASE no 6 Black & Brown Mongrel. Age 3 Months Weight 4 lbs



History.—For the past three weeks puppy has had a cough and some conjunctival catarrh. Appetite has been variable but generally good. occasional vomiting and diarrhœa. Treated by the owner with worm remedies.

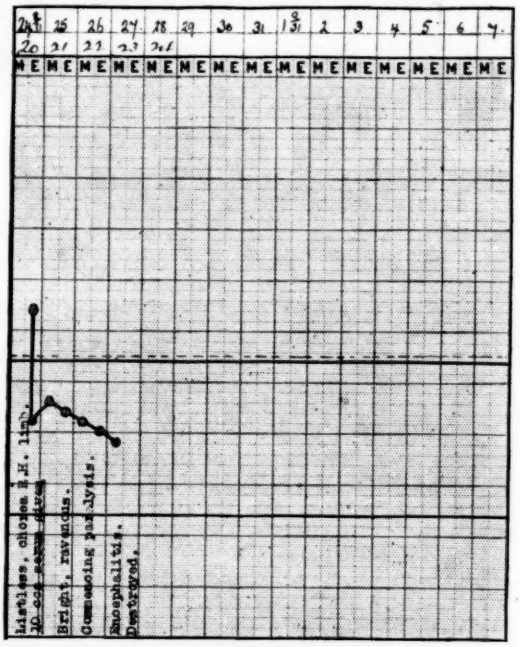
August 24th.—At the time of examination there is almost complete motor paralysis, the puppy lying on its side unable to raise the head. Onset, twelve hours. We attribute this paralysis to some accidental concussion and think it unassociated with the illness. Temperature 103·4°. *Diagnosis*, distemper ; 8 c.cs. serum given.

Remarks.—The animal was placed in the distemper ward in contact with Cases 4 and 5. Three hours later the animal was able to raise itself on its forelegs, dragging the hind. Twenty-four hours later locomotion was almost normal and the appetite was good.

During the eleven days this puppy was under observation it remained normal. The temperature rose to 104° for a few hours on the sixth day. For this we cannot account.

Our diagnosis was questionable in this case. After seruming it was immediately exposed to infection ; but for the transient rise of temperature on the sixth day, it remained normal.

CASE no 7 Cocker Spaniel. Bitch Puppy. 5 Months. Weight 13½ lbs



History.—August 24th. This puppy has been ill for three weeks. Prominent symptoms have been a variable appetite, diarrhœa, and a catarrhal conjunctivitis.

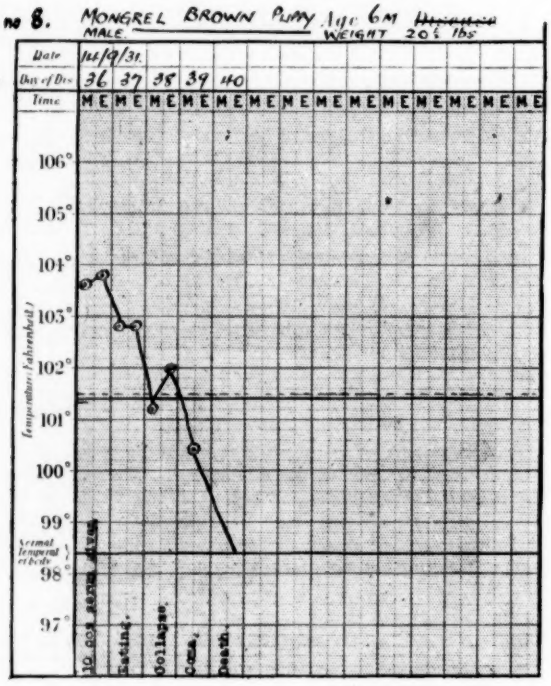
Examination.—Condition good, languid, a slight choreic jerk of the R.H. limb which was first noticed 24 hours ago. Temperature 102·4°.

Diagnosis.—Distemper, 10 c.cs. serum given.

Forty-eight hours later nervous symptoms rapidly became progressive, culminating in an acute encephalitis which quickly ended fatally.

Remarks.—Serum does not detoxicate virus which has become linked up with cells in the central nervous system.

CASE no 8. Mongrel Brown Puppy. Age 6 M. Male. Weight 20½ lbs



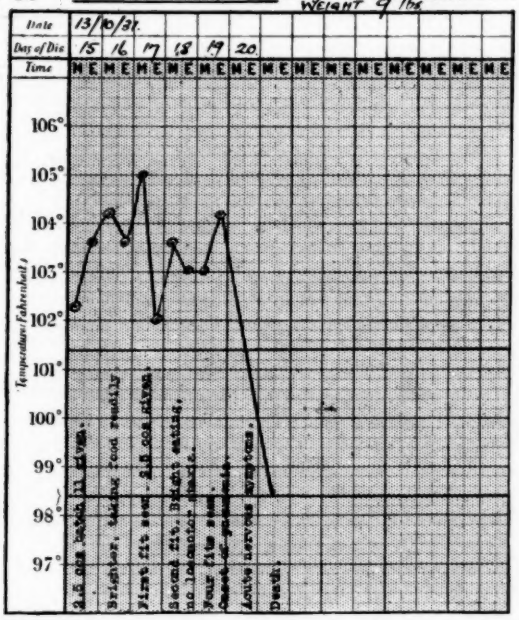
History.—Sept. 24th. This animal has been suffering from typical distemper for the past five weeks. The early symptoms were sickness and diarrhœa : later a cough and nasal catarrh developed. The appetite has been variable. There has been an acute keratitis of both eyes : the right has cleared up but the left is still infiltrated with vessels and partially opaque. A vesicular eruption on the belly. There is a fœtid stomatitis and gingivitis and the teeth are coated. The mouth is extremely painful. There is no evidence of nervous symptoms.

Prognosis very grave. 10 c.cs. serum given.

This animal collapsed and died three days later. P.M. examination revealed extensive necrosis of the mouth. The other macroscopic lesions noticed were an acute nephritis and considerable toxic hepatitis.

Death was undoubtedly due to an acute toxæmia, consequent upon the necrosis of the mouth.

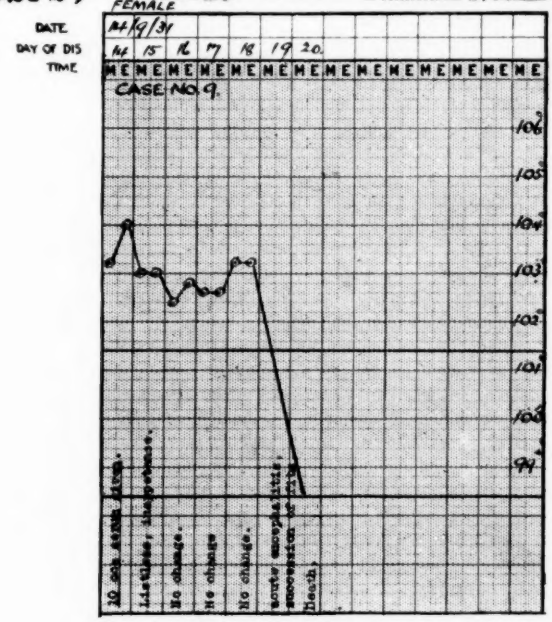
CASE no 10 MONGREL PUPPY, MALE Age 3 M. ~~Disease~~ WEIGHT 9 lbs.


Date 13/10/31.
Day of Dis 15 16 17 18 19 20
Time M E M E M E M E M E M E M E M E M E M E M E M E
Temperature (Fahrenheit)
106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
2.5 cos batch 11 given.
Brighter, taking food readily.
First fit seen 2.5 cos given.
Second fit. Bright eating, no locomotor ataxia.
Four fits seen.
Onset of paralysis.
Acute nervous symptoms.
Death.

History.—October 13th. Illness of 14 days. *Symptoms.*—Commenced with sickness, diarrhœa and loss of appetite. Alimentary symptoms have abated; now a cough, with catarrh of the eyes and nostrils. As yet no evidence of nervous symptoms, prognosis grave. 2·5 c.cs. batch 11 given (highly potent antibody).

A very marked improvement followed the use of serum. It was, however, transient. The first fit was observed 24 hours later and although a second dose of serum was given the case ended fatally five days later.

CASE no 9 BLACK & BROWN MONGREL FEMALE ~~Admitted~~ 7 MONTHS 10¾ lbs


DATE 24/9/31
DAY OF DIS 14 15 16 17 18 19 20
TIME M E M E M E M E M E M E M E M E M E M E M E M E
CASE NO. 9.
106° 105° 104° 103° 102° 101° 100° 99°
10 cos serum given.
Listless; sleepiness.
No change.
No change.
No change.
Acute encephalitis; succession of fits.
Death.

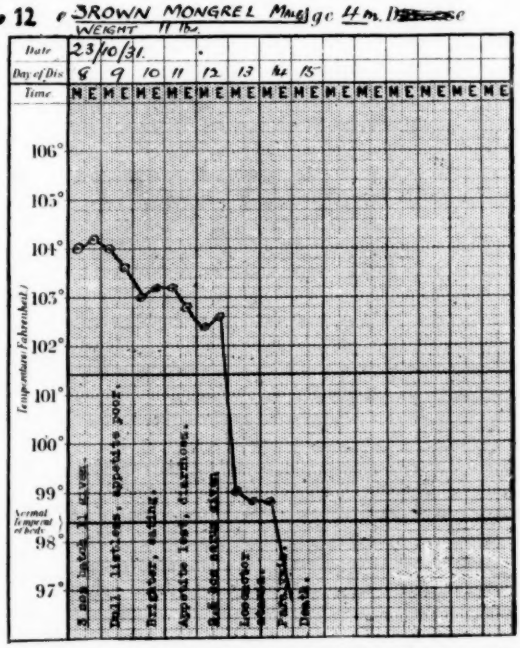
History.—September 14th. This puppy has been ill for 14 days. Symptoms have comprised malaise sickness, diarrhœa, inappetence. Considerable loss of flesh. Temperature 103·2°.

Diagnosis.—Distemper, 10 c.cs. serum given. (There is an in-contact puppy of the same age showing similar symptoms. It is decided to treat this one with medicines only. It will serve, to some degree, as a control.)

There was no apparent change for six days, when a succession of epileptiform fits was quickly followed by coma and death. The in-contact case progressed until the 24th (ten days later) when the onset of fits occurred. Nervous symptoms progressed and on the 28th the animal was destroyed.

Remarks.—These two cases reveal two interesting points. The first—at no time were the cases typical of distemper, and thus serve to emphasise my opening remarks. Secondly, after 14 days the use of serum in no way influenced the course of the disease.

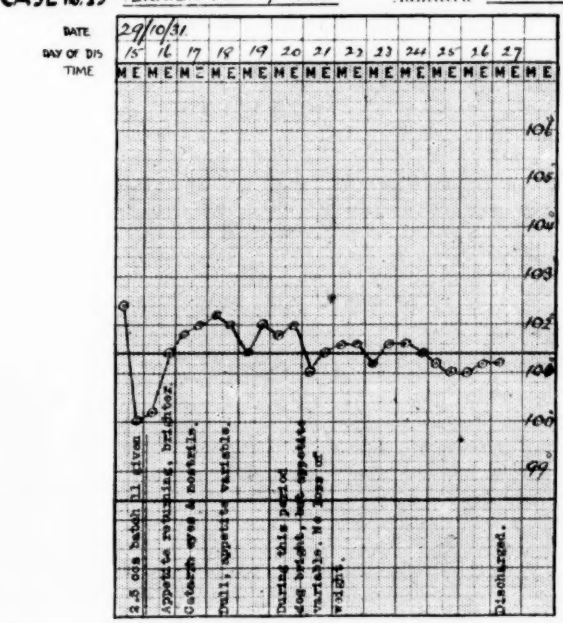
CASE no 12 BROWN MONGREL Muggo 11 m. ~~Disease~~ WEIGHT 11 lbs.


Date 23/10/31.
Day of Dis 8 9 10 11 12 13 14 15
Time M E M E M E M E M E M E M E M E M E M E M E M E
Temperature (Fahrenheit)
Normal temperature of dogs
106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
2 cos batch 11 given.
Dull, listless, appetite poor.
Brighter, eating.
Appetite lost, diarrhœa.
2.5 cos serum given
Locomotor ataxia.
Paralysis.
Death.

History.—October 23rd. Puppy has been ill for at least seven days. Sickness was an early symptom, but at the time of examination, although the puppy was fairly bright, there was a bronchitis with copious nasal catarrh. Temperature 104°. *Prognosis.*—Grave, 3 c.c.s batch 11 given. There was no appreciable change and so four days later a second dose of serum (2·5 c.cs. batch 11) was given. The same evening locomotor ataxia was observed. Nervous symptoms rapidly advanced and death occurred 24 hours later.

Remarks.—I strongly suspect that the disease had been in existence for 14 days before we were consulted.

CASE no. 13 TERRIER PUPPY, MALE ~~Admitted~~ 6 MONTHS 17½ lbs

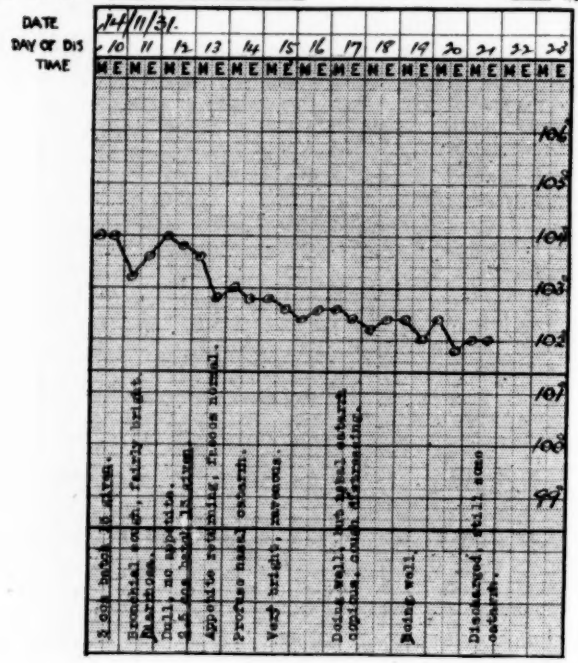

DATE 29/10/31.
DAY OF DIS 15 16 17 18 19 20 21 22 23 24 25 26 27
TIME M E M E M E M E M E M E M E M E M E M E M E M E
106° 105° 104° 103° 102° 101° 100° 99°
2.5 cos batch 11 given.
Appetite ravenous, brighter.
Catarrh eyes & nostrils.
Dull; appetite variable.
During this period dog bright, but appetite variable. No loss of weight.
Discharged.

History.—October 29th. This animal has been off colour for 14 days. *Symptoms.*—Alternating periods of listlessness and brightness. Appetite variable but generally poor. Losing flesh. On one occasion vomited ascarids.

Tentative Diagnosis.—Distemper; 2·5 c.cs. batch 11 given. This animal was under observation for 14 days during which time it continued to be up and down. A little catarrh of the eyes and nostrils was observed, but we were never certain of our diagnosis. The case recovered.

XUM

CASE no 16 FOX-TERRIER, MALE. AGE 7 MONTH WEIGHT 15½ LBS



History.—November 14th. This puppy was purchased at a dog's home eleven days previously. It became ill the next day. *Symptoms.*—Diarrhœa, a cough, appetite variable. Temperature 104°.

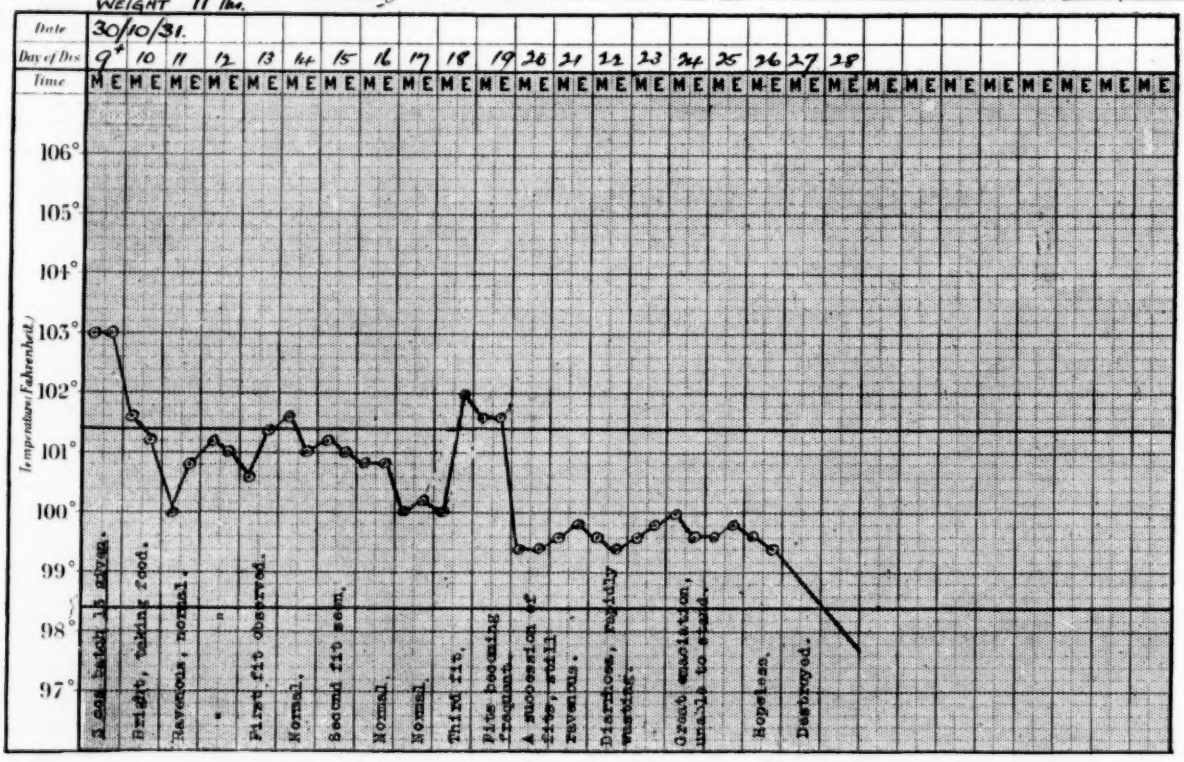
Diagnosis.—Distemper; 3 c.cs. batch 13 given.

Course.—There being no improvement during the first 48 hours, a second dose of 2·5 c.cs. was given. From this point recovery was rapid, and although a copious nasal catarrh developed, the puppy's spirit and appetite remained excellent.

Remarks.—I definitely attribute this animal's recovery to the use of serum. Under the ordinary methods of treatment one would have expected the onset of nervous symptoms about 21 days after the onset of symptoms.

March 4th, 1932.—Made complete recovery.

CASE no. 17 WHIPPET PUPPY, MALE Age 4 M. ~~Disease~~ ~~Admitted~~
WEIGHT 11 lbs.

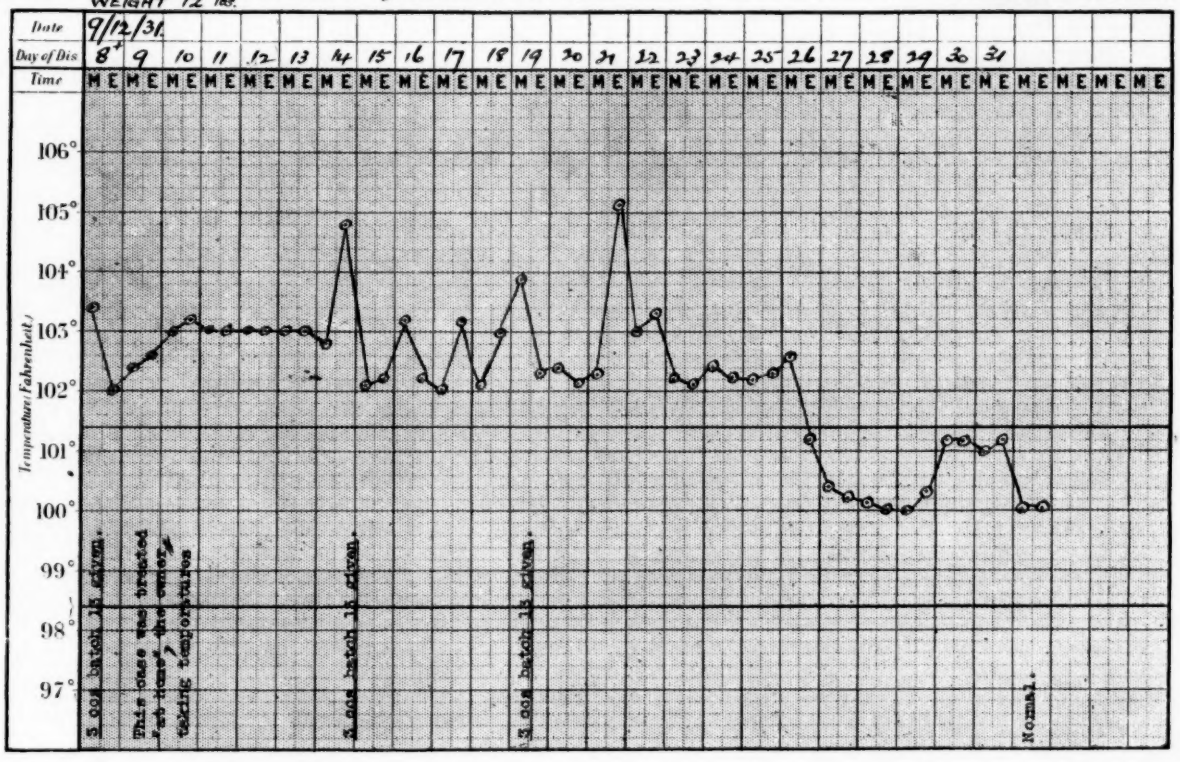


History.—October 30th. In the present owner's possession eight days and has been ill the whole time. *Symptoms.*—Malaise, appetite variable, persistent diarrhœa. Considerable emaciation, some conjunctival catarrh, a pustular eruption skin of axillæ, belly and thighs. Temperature 103°.

Diagnosis.—Distemper, prognosis grave. 3 c.cs. batch 13 given.

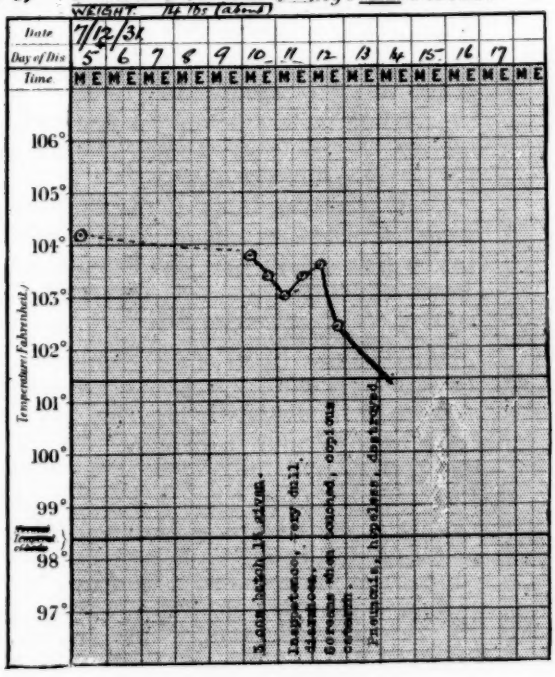
Course.—A remarkable improvement followed the use of serum. The temperature subsided, the puppy became bright and playful and its appetite was ravenous. Four days later the first fit was observed; it comprised involuntary champing of the jaws with salivation. On the eleventh day after treatment fits became frequent, some of them involving the whole of the voluntary musculature. From this point a paralysis set in and the animal was destroyed on the eighteenth day. *Remarks.*—This case confirms our previous experience serum must be given early in these young puppies.

CASE no 18 FOX-TERRIER, MALE Age 4m. ~~Disease~~ ~~Treatment~~
WEIGHT 12 lbs.


Date
9/12/31
Day of Dis
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Time
M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E
Temperature (Fahrenheit)
106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
3 cos batch 13 given.
This case was treated for three days by the owner, taking temperatures
3 cos batch 13 given.
3 cos batch 13 given.
Normal.

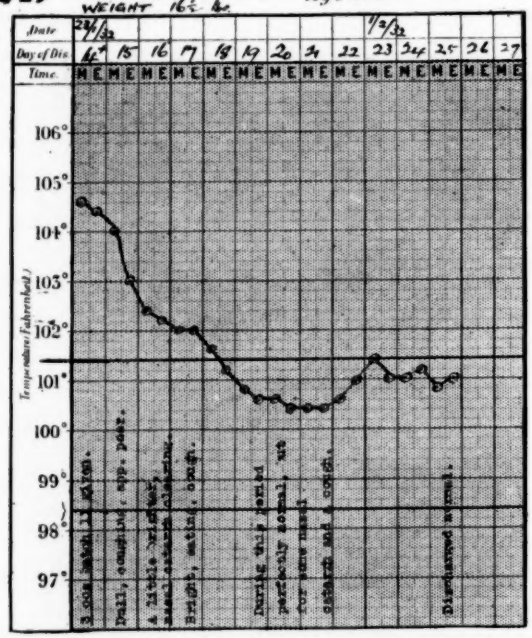
December 9th, 1931.—This puppy was purchased at a dog shop eight days prior to being presented for treatment. Has had a distressing cough during the whole period, but is bright, appetite is good, no sickness or diarrhœa. Temperature 103·4°. 3 c.cs. con. antibody batch 13 given.
December 15th, 1931.—During past week appetite good, bright and playful, cough persists, diarrhœa. Temperature 104·8° (probably due to the fact that the dog has been "run" to College). Second dose 3 c.cs. batch 13 given.
December 19th, 1931.—Appetite excellent, bright, cough improved, diarrhœa persists. Temperature 103·9°. Third dose 3 c.cs. batch 13 given.
December 28th, 1931.—Quite well but for slight cough. Owner observed what he thought to be a fit, which lasted two minutes.
January 4th, 1932.—Perfectly normal during past week.
January 15th, 1932.—Normal. *March 3rd*, 1932.—Normal.

CASE no 19 BRINDLE MONGREL Male Age 5m. ~~Disease~~
WEIGHT 14 lbs (about)


Date
7/12/31
Day of Dis
5 6 7 8 9 10 11 12 13 14 15 16 17
Time
M E M E M E M E M E M E M E M E M E M E M E M E M E M E
Temperature (Fahrenheit)
106° 105° 104° 103° 102° 101° 100° 99° 98° 97°
3 cos batch 13 given.
Inappetence, very dull.
Diarrhœa, cough, serous discharge from nose and mouth.
Pneumonia, hopeless, destroyed.

History.—December 7th. History of illness of about five days.
Symptoms.—Malaise, loss of appetite, occasional vomiting, diarrhœa. Temperature 104·2°.
Diagnosis.—Distemper, medicine prescribed (no serum available). December 12th. No change. Persistent diarrhœa, nasal and conjunctival catarrh
Prognosis.—Grave. 3 c.cs. batch 13 given.
Course.—Was not affected by the use of serum. On the 15th pneumonia. developed and the case was destroyed as hopeless.
Remarks.—One feels that had serum been available on December 7th this case might have been saved. It may be said that we gave too small a dose.

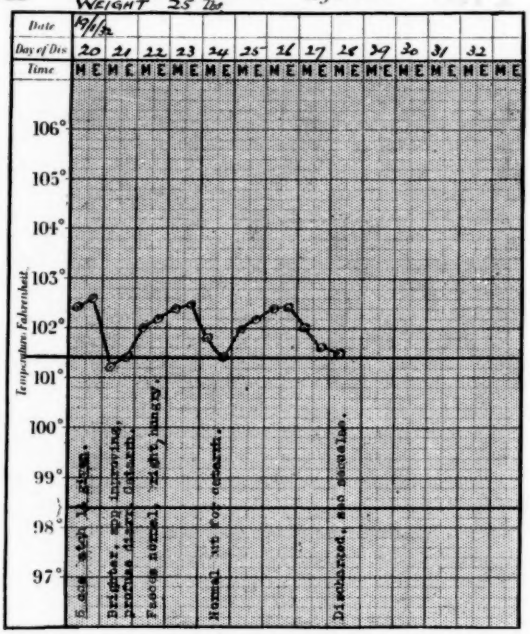
CASE no 23 FOX-TERRIER MALE Age 8M. WEIGHT 16½ lbs.



History.—January 23rd. This animal has been ill for at least 14 days. *Symptoms.*—Commenced with malaise and diarrhœa, but now the case is typical of distemper. Temperature 104·6°. *Prognosis* grave. 3 c.cs. batch 11 given.

Course.—Forty-eight hours after the use of serum the animal brightened up, commenced to eat and from that point did not look back. It was under observation eleven days.

CASE no. 25 BULL-TERRIER BITCH Age 13M WEIGHT 25 lbs.



History.—January 14th. This bitch, 13 months old, has been ill for 14 days. Symptoms have comprised profuse diarrhœa, a poor appetite, and a cough. Temperature 102·3°. *Diagnosis.*—Distemper, gastro-enteric symptoms predominating. Medicines prescribed.

January 19th.—No improvement, complete inappetence, animal very emaciated. Temperature 102·4°. 5 c.cs. batch 14 given, and animal admitted to hospital.

Course.—Marked improvement attended the use of serum and eight days later the bitch was discharged, having gained 3½ lbs. in weight.

February 2nd.—Owner reports bitch normal, and a further increase of 1½ lbs.

February 6th.—Owner observed an epileptiform fit.

February 8th.—Onset of locomotor inco-ordination. Case not seen since.

Remarks.—This case confirms our previous experience that in cases in which serum is adopted late in the attack, although its administration gives rise to an apparent speedy recovery, it does not check the subsequent onset of nervous symptoms.

Note.—*Wherever the word "serum" is used it refers to "Concentrated Antibody."*

SUMMARY GROUP "B"

Case No.	Age	Days after onset of symptoms con-anti-body given	Result	Remarks
4	4 m.	20	Chorea.	Partial recovery.
5	4 m.	12	—	Result unknown.
6	3 m.	21	Recovery.	Diagnosis questionable.
7	5 m.	21	Died.	Nervous symptoms.
8	6 m.	35	Died.	Toxæmia.
9	7 m.	14	Died.	Nervous symptoms.
10	3 m.	14	Died.	Nervous symptoms.
12	4 m.	8	Died.	Nervous symptoms.
13	6 m.	14	Recovery.	Diagnosis questionable.
16	7 m.	10	Recovery.	A striking case.
17	4 m.	8	Died.	Nervous symptoms.
19	5 m.	10	Died.	Pneumonia.
18	4 m.	8	Recovered.	Treated at home.
23	8 m.	14	Recovery.	A good case.
25	13 m.	14	Locomotor incoördination.	Partial recovery.

Treated.	Recoveries.	Failures.	
15	5*	9	Died, 7. Developed nervous symptoms but still living, 2.
		1	(No. 5), result unknown.

*Diagnosis questionable in 2 cases (Nos. 6 and 13).

Conclusions

1.—Laidlaw-Dunkin concentrated antibody is of very great value in the treatment of canine distemper provided it is used within seven days of the onset of symptoms.

2.—That it is efficient in protecting animals against the disease, when infection occurs immediately after its use.

3.—When symptoms of the disease have been in existence for longer than seven days the larger proportion of the evidence of our cases shows that it does not materially affect the course of the disease, although in two cases a spectacular recovery occurred after its use.

Acknowledgments.

I wish to acknowledge the help I received from my former colleague, Mr. R. Machin, M.R.C.V.S., and my present colleague, Mr. J. H. N. Hobday, B.SC., M.R.C.V.S., and also the kindness of Messrs. Laidlaw and Dunkin in giving us the supplies of concentrated antibody.

A half-bred Wensleydale ewe, the property of Mr. Joseph Pickersgill, of Middleham, has given birth to six lambs. This prolific ewe has had 18 lambs in four seasons.

The Veterinary Record
April 16th, 1932.

"DEFENCE, NOT DEFIANCE."

ON page 452 of this issue appears a report of the Annual General Meeting of a Society which, as regards its defence activities, is unique in the veterinary profession—The National Veterinary Benevolent and Mutual Defence Society.

This organisation has for its primary object the protection of its members (who must, of course, be Members of the Royal College of Veterinary Surgeons) against unfair claims and actions-at-law, and *it is the only such Society in the profession.*

The headquarters are in Manchester, where the Society was founded as long ago as 1865, but, as its name implies, it is national in character. The Council is drawn from all parts of the country with the object of having as wide a representation as possible in its activities.

Much of the work done is never made public (for obvious reasons), and therefore it is not generally known and appreciated by the profession. This is reflected in the membership, which is only about 10 per cent. of the number on the Royal College Register—a surprising figure when one reflects how invaluable such an organisation is, especially to the general practitioner.

And there is another aspect of the good work carried out by this Society—the benevolent side. All surplus funds are used for the relief of necessitous veterinary surgeons or their dependants, and it is pleasing to know that in this respect the Society co-operates with the Victoria Benevolent Fund, although the two organisations are quite separate and distinct.

The Society aims to embrace the whole of the profession, and it behoves every veterinary surgeon, no matter in which branch of the profession he is engaged, to join—thus insuring himself, in the only way open to him, against unforeseen and often unavoidable calamities.

Young men are discouraged from taking up the study of veterinary medicine in Germany on account of the uncertain future. Germany has about 7,525 veterinarians and half of them seem to be in want. Five hundred and seventy-nine new students are swelling the ranks of the profession and since Germany has been reduced in size, has lost its colonies and agriculture is hard-pressed the professional outlook for veterinarians is anything but encouraging.—*Deutsche Tierarztliche Wochenschrift,* No. 43.

Clinical Communications

EYE DISEASES DUE TO FOCAL SEPSIS

DAVID ERIC WILKINSON, M.R.C.V.S.,
Chigwell

The perusal, in a recent number of *The Clinical Journal,* of a most illuminating paper on the above subject by Dr. A. F. Maccallan, of The Royal Eye Hospital, recalls to mind cases which have come under the writer's notice and emphasises the importance of looking beyond the local lesions for the cause of many affections of the eye met with in veterinary practice.

With the purulent ophthalmia accompanying so many cases of distemper all practitioners are familiar, but there are encountered many cases of conjunctivitis, corneal ulcer and blepharitis, especially amongst the prominent-eyed breeds, such as Pekingese, spaniels, pugs and bulldogs, which one is apt at first to regard as traumatic in origin or as due to a superimposed infection of some trauma, but which on further examination or after the breakdown of local treatment prove to be directly connected with some focus of infection which may be adjacent to or even remote from the affected organ.

Dr. Maccallan remarks: "The most common sites for foci of sepsis which may react on the eye by the absorption of toxins are the mouth, the tonsils, the accessory nasal sinuses, the intestinal canal, the gall bladder, the prostatic urethra, and the pelvic organs in the female." These remarks, with the possible exception of the gall bladder, apply with equal force to the cases which come under our notice. The writer has not had personal experience of a case which could be traced to infection of the gall bladder, but that does not rule out this organ as a possible focus of infection.

In one Pekingese spaniel affected by purulent conjunctivitis and corneal ulcer the focus of infection was definitely located as the mouth. The breath was fœtid and the teeth heavily encrusted with tartar. Removal of the tartar revealed disease of the fourth upper premolar on the left side but extraction of this tooth was forbidden by the owner. The cleaning up of the oral sepsis resulted in a speedy recovery from the ophthalmia and healing of the corneal ulcer.

Some few months later the symptoms recurred, accompanied now by pus in the antrum with the characteristic discharge down the cheek.

Consent to extraction of the diseased tooth was now obtained and this operation was followed by complete recovery.

A similar case, also in a Pekingese, was associated with a chronic purulent vaginal catarrh. The subject was an obese bitch, seven years old, which had suffered from metritis following

forcible removal of a dead fœtus some months before she came under the writer's notice.

Treatment consisted of the administration of pituitrin by intra-muscular injection, pending the preparation of an autogenous vaccine from a vaginal swab. The usual antiseptic collyria were applied to the eyes. Recovery followed the administration of the vaccine, but a relapse occurring after the next œstrum, ovaro-hysterectomy was resorted to. Examination of the resected uterus revealed the cause of the relapse as the breakdown of healed ulcers, apparently during the hyperæmia of œstrum. Four years after operation this subject is alive and well and has shown no further ocular symptoms.

A more recent case was that of a Pomeranian dog, nine years old, exhibiting purulent ophthalmia and a chronic purulent otitis arising from oral sepsis. Complete recovery followed extraction of all the teeth.

In the larger animals such cases are not so frequent, but last summer the writer had a case of unilateral purulent ophthalmia in a hunter. The affection had persisted for some time and was accompanied by profuse lachrymation which scalded the cheek. Occlusion of the lachrymal duct was suspected and this was cleared by irrigation from the distal orifice, but resulted in temporary improvement only. On further examination pus in the maxillary sinus was suspected from the loss of resonance on percussion. This diagnosis was confirmed by exploration with a gimlet, although there had never been any nasal gleet. The fourth molar was suspected of caries, although the crown was apparently sound and the tooth firmly fixed in the alveolus. Complete recovery followed extraction of this tooth, the roots of which were badly necrosed.

Ocular infection in cows following retention and decomposition of the fœtal membranes is not uncommonly met with and possibly there is some connection between the two conditions.

Blepharitis, purulent conjunctivitis, corneal ulcer and tarsal cysts would appear to be quite frequent accompanists of streptococcal infections.

The above remarks refer to conditions which proved curable by elimination of the focal sepsis with practically no other treatment, but, as Dr. Maccallan is careful to point out, other cases may prove less tractable. Amongst such cases the writer can recollect the formation of persistent anterior senechiæ in both eyes of a deerhound following an attack of distemper complicated by broncho-pneumonia; a panophthalmia followed by complete purulent disintegration of the eyeball set up by an infected fracture of the horn-core in an aged dairy cow and the formation of bi-lateral cataracts in the eye following an acute toxæmia in a cart-horse which had been fed upon newly-harvested oats in the autumn of 1914. There was, of course, a possibility of hereditary predisposition to cataract in the last case, but the horse had been examined for soundness a few weeks prior to his illness and the eyes were then quite normal.

Another case of chronic ophthalmia was encountered in a hunter colt, three years old, which suffered from secondary abscess formation following an acute attack of "strangles." During the summer of 1896 this colt wandered about at pasture in Leicestershire a living skeleton, constantly passing pus with the fæces although nothing abnormal could be detected on rectal exploration. Such a case might have responded to vaccine therapy, but little was known of it in those days.

On reflection it can hardly be wondered at that so complex, sensitive and delicate an organ as the eye should react to profound changes in the animal economy. The changes taking place in that organ are, however, frequently transient, as in one case of smoky cloudiness of the aqueous which followed severe hæmorrhage in a cart-horse, and as they clear up with the disappearance of the graver symptoms they are apt to escape more than passing notice.

* * * * *

LIVER FLUKE IN CATTLE

A Note on Medication

A. G. DOHERTY, M.R.C.V.S.,
The Curragh

The combination of camphor with the anthelmintic used appears to have been of great value over a number of cases observed during the present season. The rapidity of absorption and carminative action with stimulation of camphor, especially on irritated mucous membranes, assists towards the early alleviation of symptoms when cachexia and diarrhœa are pronounced, as they usually are, before professional assistance is sought.

In order to reduce the cost of medication (tested male fern extract costs 14s. 6d. per lb.) I combined it with ol. tereb. and have been pleased with the results. Preparation of the camphor with an oily basis before combining the anthelmintic and administration in hot milk has been the method employed. Full doses of both drugs are well tolerated for two consecutive mornings.

* * * * *

CARBON TETRACHLORIDE AS AN ANTHELMINTIC

ERNEST F. JARDINE, B.V.Sc.,
Basseterre, St. Kitts

In response to your request regarding carbon tetrachloride as an anthelmintic, in the *Veterinary Record* of February 20th, 1932, I forward my experience with the use of the drug in dogs and puppies—a litter of ¾-bred Alsatian puppies, five weeks old. One morning several *Ascaris marginata* were found on the

floor, but no one knew which of the pups had passed them. Four, weighing about 4¼ lb. each, were selected for treatment. No food was given for 12 hours. Each received 12 minims in hard capsule and no milk was given for two hours after. In from three to four hours each pup passed an enormous number of the above-named worms, and the pups appeared bright for the remainder of the day. At last feeding time—8 p.m.—all food was refused and the animals were dull and uneasy, changing positions often, and lying flat on their stomachs with the front legs stretched forward. Next day three of the pups were much quieter, but not eating well. A little milk was drunk—one refused all food. On the third day the three pups had nearly regained their appetites and began to play a little; the fourth pup looked very sick, as if it were going to die. At 8 p.m. on the third night that pup was given half a teaspoonful of whisky and water—half-an-hour after it vomited several round worms.

Fourth day: Three pups practically normal again. Fourth pup drank a little milk and appeared much livelier. Wanted to play a little.

Fifth day: Three pups playing about. Fourth pup's appetite improving; playing about with the others.

Sixth day: All pups appeared all right.

(2) Pure-bred Alsatian, 66 lb. in weight, 1 year 3 months. Received 45 minims in hard capsule after 12 hours fast. No food for two hours after. No toxic symptoms.

(3) Mongrel dog, 40 lb., aged. Forty-five minims in hard capsule. No food for six hours after. No toxic symptoms.

(4) Fowl. Thirty minims in hard capsule. No toxic symptoms.

. . . . .

(*From a Kentucky Reader*)

Relative to your enquiry, *re* carbon tetrachloride—I have used this drug for the past five years for the treatment of the large intestinal round worms of horses, and during this time, in one stud, I have treated about 80 head, twice a year, and can strongly recommend its use.

The efficacy for horse ascarides is practically 100 per cent., and for strongyles 90 per cent. (Oil of chenopodium is reputed to be 100 per cent. effective in the case of strongyles, but one alarming experience of this drug caused me to discontinue it, and I now depend on tetrachloride.)

Fast the patient for at least 24 hours, and then administer the drug per stomach tube: six drams for a horse weighing 1,000 lbs., four drams for a yearling, and three drams for a six-month-old weanling, plus eight ozs. or more of glauber salts dissolved in one pint of water. Turn out to pasture or feed a bran mash one hour after administering the drug. Twenty-four hours later, plenty of worms will be passed, more especially in weanlings. Using the drug in those doses I have never had any toxic sequelæ, although now and again an odd case may show slightly colicky pain which soon passes off without any treatment.

I would not recommend giving the drug in capsule form, as a capsule is apt to get broken and give rise to serious or even fatal results.

Abstracts

[Second Report on the Calmette-Guérin Method of Vaccinating Animals against Tuberculosis. Cotton, W. E., and Crawford, A. B. (*Jour. Amer. Vet. Med. Assoc.* N.S. Vol. 33, No. 1. January, 1932. pp. 18-29.]

The authors describe the work carried on in continuation of that previously reported on by Schroeder and Crawford at the United States Bureau of Animal Industry Experiment Station. Results are now given of three experiments made to test the efficacy of vaccinating cattle with B C G, three groups of animals being employed: (1) one of animals born and maintained in a tuberculous environment, and vaccinated subcutaneously with B C G at birth and yearly thereafter; (2) one group of animals born and maintained in a tuberculous environment and vaccinated by mouth with B C G at birth; and (3) one group of calves vaccinated by mouth with B C G at birth and placed in a tuberculous environment several months later.

In the first experiment, of six calves born in a tuberculous environment during the course of previous B C G tests, three were vaccinated subcutaneously with B C G during the first ten days of life and yearly thereafter and the remaining three were left untreated as controls, being kept under the same environmental conditions. All were kept for rather over a year in contact with tuberculous animals in a field, and were then removed to a non-infected environment. They were killed for examination three to five years after birth.

In the second experiment three calves born in a tuberculous environment were vaccinated orally with B C G, three doses of 120 mg. each being given during the first eight days of life. Three control calves were not vaccinated. The animals remained exposed to infection for rather over a year, when they were removed to healthy surroundings; they were killed for examination two to three years after birth, except in the case of two of the control animals, which died as the result of lead poisoning. In the third experiment two calves born in non-infected surroundings received three doses of

B C G, each of 120 mg., by the mouth during the first week of life. Two similar animals were left unvaccinated. Four months later all the animals were transferred to a tuberculous environment and kept there until they either died by misadventure or were removed eleven months later. The only animal that survived was killed a year after removal from the infected environment.

At the time these investigations were started Calmette was attempting to determine whether or not tuberculosis could be eradicated from an infected herd in five years by vaccinating all newborn animals within the first ten days of life and yearly thereafter, all animals living in cohabitation. Calmette now advocates the segregation of the newborn for a period of one to two months following vaccination.

Commenting on one of the criticisms by Calmette of the first series of investigations, that the animals were killed too soon (within one year after vaccination), and that if the vaccinated animals had been allowed to live the lesions would have resolved, the authors state: "This criticism did not seem justifiable since, if an agent could not prevent tuberculosis from being so extensively established as was the case in our first vaccinated animals, it would appear illogical that the continued use of the same agent would tend to resolve the lesions, especially when exposure is continued. The idea of revaccination itself seems to be a contra-indication, since vaccinated animals, in our experience, invariably contract tuberculosis when exposed naturally or artificially, and one of the chief tenets of Calmette is that only animals free from tuberculosis should be vaccinated."

In view of the fact that tuberculosis in animals has been proven to be not only a menace with regard to the public health but a most serious drain on cattle and dairy industries, the policy of the Bureau of Animal Industry with regard to tuberculosis in animals is not to endeavour to prolong the life of a tuberculous animal, "which the tests made at this station clearly indicate is all that could be hoped for from the use of the B C G vaccine," but rather to detect the presence of tuberculosis by means of the tuberculin test as early as possible in order that this disease may be eradicated in the United States.

In the experiments herein described the lesions in the vaccinated animals were very similar to those in the control animals, and this further work thus corroborates the conclusions drawn from the earlier investigations: that B C G vaccination, at best, merely inhibits the progress of tuberculous processes, and further shows that the lesions of tuberculosis, once established in vaccinated animals, do not tend toward retrogression.

W. B.

[**Food Toxi-infections of Flesh Origin and Bacteriological Inspection of Meat.** Verge, L. *Recueil de Médecine Vétérinaire.* cvii, No. 11.]

The subject of meat poisoning is defined as toxi-infectious accidents, predominantly gastro-intestinal, observed in man and sometimes in animals, following the ingestion of fresh or preserved meat without the examination of the foods disclosing the existence of a clearly defined chemical poison. This definition excludes true infections—tubercle, anthrax, etc.; parasites—trichinosis; pure intoxications—botulinism; chemical poisonings—arsenic, etc. It also excludes accidents from other foods than meat —oysters, shell fish, cream, cakes, etc.

To illustrate the definition a striking example is given. In 1895 a distinguished veterinarian, a meat inspector, received from the police some sausages for his opinion as to whether they might be responsible for some cases of food poisoning that had recently occurred. The inspector, judging by the odour and appearance of the sausages, did not hesitate to pronounce them fit for food and accordingly he and three of his assistants ate some of them. Twelve hours afterwards all were ill with fever, vomiting and severe diarrhœa, and six days later the veterinary inspector died. A microbe pathogenic for experimental animals was cultivated from the sausages and from the viscera of the veterinarian and closely resembled the typhoid bacillus.

Food poisoning occurs in all parts of the globe, but it is particularly frequent in Belgium and Germany. In Prussia, during 1927, there were 96 epidemics, 3,100 sick and 18 deaths. In England, from 1919 to 1923, Savage reported 33 outbreaks with 601 patients and 8 deaths, the most important of the epidemics being at Glasgow, London and Bristol. In America, 425 epidemics comprised 1,902 patients and 145 deaths, an extremely high mortality; only 28 times did the meat show itself altered macroscopically.

The microbes principally responsible for meat poisoning belong to the group of *Bacillus paratyphosus B.*, hence named flesh bacilli. Exceptionally, other bacteria are agents of meat poisoning—proteus, *Bacillus coli*, etc. The flesh-poisoning bacilli are the bacillus of Gærtner, *B. ærtrycke* and *B. suipestifer.* They have all considerable pathogenic power and subcutaneous injection of their culture kills laboratory animals and often the dog, goat and bovines. Ingestion of cultures will also produce disease in animals. In 1894 a cow was inoculated with the bacillus to which an epidemic then raging among people in Rotterdam was due. Twenty minutes after inoculation the cow was killed. On examination immediately after death, very few bacteria were

found in the flesh. A piece of the flesh left in the open air for three days showed numerous microbes. Fifty-three persons voluntarily ate some of the meat and 15 became ill; happily there were no deaths. Less fortunate were some people who ate vegetables which, after cooking, were put into a bowl in which rat virus (containing *B. gærtner*) had previously been mixed. All those who partook of the greens became ill and two died. As well as being virulent in themselves these flesh bacilli secrete a thermostable toxin which is rapidly formed, has considerable pathogenic power, is not destroyed by boiling and retains its activity for long even in an ice box. It also plays the part of an aggressin, exalting the pathogenic power of the germs from which it is derived.

Of the three flesh bacilli the *B. ærtrycke* is the one most frequently encountered. Like *B. gærtner*, it has several types—bacillus of scour in calves, septicæmia of calves, psittacosis and bacilli of diverse animal and avian paratyphoses. The author holds that *B. suipestifer* is undeniably pathogenic for man and that it only needs research to establish the opinion. In 1927, the bacillus was recovered from a fatal case in man and in 1930 there were three deaths out of eight persons attacked, the agent being *B. suipestifer*.

Of the other microbes found in toxi-infections of flesh origin the coli bacillus found everywhere in the alimentary tract can reach the meat by passing the gut wall in the death agony, in case of defective bleeding, delayed evisceration and by soiling. Also in diarrhœa and arthritis due to this germ its presence in the flesh has been demonstrated.

Proteus vulgare, an agent of putrefaction, is usually a harmless inhabitant of the intestine; it can, however, through its toxin, become pathogenic. Before Verdun in 1918, 2,000 Germans became ill three hours after eating liver sausage. The patients suffered from gastro-enteritis. Proteus was found in pure culture in the sausages and in the fæces of the subjects. The sausages were eaten uncooked and the poisoning was due to the secreted toxin, which is readily destroyed by heat.

With regard to the etiology of these toxi-infections, the presence of the flesh bacilli in the meat may derive from infection in the living animal or contamination after slaughter. In the first case the animals most frequently incriminated are the calf (diarrhœa, septicæmia, joint-ill); cow (intestinal and uterine infections, parturition, mammitis); pig (enteritis, septicæmia, pneumo-enteritis).

There is most danger from intestinal and genital affections, the damaged mucosa giving passage to microbes which thus reach the blood and muscle. The flesh bacilli are essentially germs of infectious enteritis. In cases of urgent slaughter of an animal the meat has frequently caused epidemics in man.

In a village near Breslau a cow affected with violent diarrhœa was killed. The *post-mortem* revealed intense enteritis and hepatitis and the carcass was ordered to be destroyed; it was stolen, taken to Breslau, the flesh minced, sold and eaten raw by 80 persons, all of whom became ill. Anthrax frequently gives occasion for urgent slaughter, the cause of the illness of the animal being unknown. While internal anthrax in man seldom occurs from consumption of the meat, external localisation is frequent. In Germany, during 1928, there were 101 cases of human anthrax and five deaths, and in 1929, 102 cases and 7 deaths.

Dead animals and those kept from inspection are very dangerous. Of 25 calves dead of dysentery, *Paratyphosus B.* was found 23 times and *Bacillus coli* twice in the organs.

Certain extrinsic causes influence infection. Hot damp weather favours the development of germs and toxi-infections are frequent in summer. Time elapsed since slaughter is important. A piece of meat taken from an infected carcass soon after slaughter may on consumption do no harm; some days later, after multiplication of the microbes and development of toxins, the flesh becomes dangerous. Cooking, though a safeguard, does not always render infected flesh innocuous. Bacilli of meat poisoning are destroyed at a temperature between 65° and 70° C., while the central part of a roast only reaches 45° C.: it needs three hours boiling of a large piece of beef for its centre to reach 60°.

In 1917, at Pré Saint Gervais, 100 children showed symptoms of gastro-enteritis after a meal of meat from which soup had been made and consumed on the previous day with no ill results then. A round of beef had been used to make the soup. *Bacillus paratyphosus B.* was found in the meat.

The quantity of meat consumed has a great influence on the occurrence of the affection, but it is not always proportional to the severity of the attack. The individual receptivity is marked. In an epidemic at the camp of Martinerie, 51 persons partook of calves' heart and 49 became ill; the two cooks, who were drunk during the meal, suffered no ill-effects.

The contamination of meat after slaughter is confined for the most part to conserved and worked-up meat, mince sausages, black and white puddings, etc.

Pathogenic germs can be conveyed to meat, otherwise healthy, by insufficient bleeding, delayed evisceration (which favour passage from the bowel of these microbes), soiling by dirty cloths and instruments, etc., and by carriers of germs, surface soiling leading to multiplication of the germs and penetration by them. Cases

of human typhoid due to cooks who are carriers are well known. At Oyster Bay, New York, in 1906, six persons in one family were attacked by typhoid fever. It was ascertained that the first case occurred ten days after a new cook had taken on her duties. During the lapse of ten years she had been employed in eight families and in each typhoid had broken out a week or two after her arrival. She had provoked 36 cases of typhoid, one of which was fatal. While most authors agree that infection of the living animal plays the larger rôle in these epidemics, Bougent assigns it to *post-mortem* contamination from the ubiquity of the paratyphoid bacilli.

Views as to the pathogeny of these diseases have changed. Ptomaines engendered in the putrefaction of meat were long held responsible; they are now attributed to toxi-infections, the troubles being due in some cases to the presence of the microbes, in others to their toxins only. The clinical expression of these affections differs greatly. After an incubation period of from a few hours up to a day and a half the malady may take on one of several forms. Gastro-enteritis (this the common type) accounts for 80 per cent. of the cases. In it there is headache, vomiting and diarrhœa and usually recovery in a day or two. In the dysenteric form (much less frequent) similar but much more acute symptoms are observed and the fæces are often sanguinolent and attended by severe straining. A choleraïc form is met with, characterised by incessant vomiting and watery alvine evacuations, cramps, collapse, and hypothermia. Death may occur in 24 hours. A typhoid form in which the spleen is swollen and abnormal, forms accompanied by ptosis and mydriasis, cutaneous eruptions, albuminuria and jaundice are also described. The mortality in these epidemics is about 1 per cent. Geiger, however, in 1,902 cases records a death rate of 7·62 per cent. The diagnosis of these toxi-infections is made by the medical man and the veterinarian. The doctor confronted with cases of gastro-enteritis attacking, to the exclusion of others, persons who have recently eaten a particular food, can hardly misconstrue the nature of the accidents, and samples of the food, together with those of the blood, fæces, and urine of the patients are procured for bacteriological examination. The veterinarian, having traced the source of the meat, will be doubly suspicious if he finds it comes from an animal ill when killed or slaughtered for urgent reasons. Samples of the flesh, together with lymphatic glands, taken with antiseptic precautions, and a long bone of the animal suspected are sent to the bacteriologist, who mainly depends on cultures made from the samples sent (especially of the marrow) to pronounce an opinion.

The author finds that media containing brilliant green are best adapted for the culture of microbes belonging to the paratyphoid group.

W. R. D.

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[**The Protective Value of Strangles Bacterin, tested on the Horse after Infection with Strangles Streptococci.** (Trans-title.) Blom, T. (1932). *Skand. Vet.-Tidskr.* 22, 1, 4-18. 4 figs.; 4 tables.]

The author carried out experiments to ascertain if the strangles vaccine issued by the Swedish State Veterinary Bacteriological Institute possessed protective powers.

The vaccine consists of a 0·1 per cent., by volume, suspension of killed strangles streptococci in phenol-saline. Strangles is so common in Sweden that the experimental horses were brought from Iceland *via* Copenhagen and Malmö. On arrival one had developed strangles and died nine days later. The 11 remaining animals were sent to the S.V.B.I. farm some miles outside Stockholm, where experiments were commenced. It is not stated how long after the illness in the affected horse experiments were constituted with the remainder. They were divided into Group 1 of four controls; Group 2 of two; Group 3 of three and Group 4 of four horses.

Groups 2, 3 and 4 were given 15 c.c. of vaccine subcutaneously. One hundred c.c. of an 18-hour old serum-bouillon culture of strangles streptococci were injected intravenously into Group 2, 14 days; Group 3, 28 days; and Group 4, 42 days after vaccination. In each case this was followed three days later by a second intravenous injection of a similar culture prepared from the horse which had died after arrival.

All the experimental animals died. The average period of survival was Group 1, 15 days; Group 2, 13 days; Group 3, 24 days, Group 4, 24 days. In the latter group one horse survived for 46 days which (possibly an instance of individual resistance) increased the average unduly. The author concludes that the resistance powers of the animals infected four weeks after vaccination were increased by more than 50 per cent. Further experiments were undertaken concurrently: the serum of the experimental subjects was injected at periods during the illness into mice which were then injected with strangles streptococci to estimate the protective value of the serum; this was found to be maximal three to four weeks after vaccination and corresponds to the time at which vaccination was found to have bestowed the greatest protection upon the horses.

A second appendix, of interest to the clinician, summarises the changes found in the animals after death.

Pathological changes occurred in every case

in the pleuræ, the pericardial sac, the skeletal musculature, the peripheral lymph glands and at the injection sites. In the majority of cases the lungs and kidneys were involved.

Of the muscles, those of the neck, shoulder, gluteal region and loins were involved most frequently. No lesions were found in the mediastinal and bronchial lymphatic glands, spleen, bowel, peritoneum, sheaths and bursæ, joints, intercostal and masticatory muscles and diaphragm.

Four figures depict characteristic changes in the lungs and pericardial sac, heart muscle and kidney respectively.

G. B. B.

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[**The Iron Content of the Blood of the Horse, with reference to its Significance in Pernicious Anæmia.** (Trans-title.) Preliminary Communication. Lehnert, E., and Svensson, S. (1932). *Skand. Vet.-Tidskr.* 22, 1, 21-25. 1 table.]

With the object of studying its significance in cases of infectious anæmia in the horse, the authors seek to establish figures for the normal Fe-content of canine blood.

Estimations are tabulated of the examination of 59 military animals which were clinically healthy and engaged in daily manœuvres. The method of estimation and equations upon which the process is based are described.

The results are as follows:—

Average Fe content: 0·409 grammes per 1,000 c.c. blood.

This corresponds to a hæmoglobin content of 122·8 grammes per 1,000 c.c. blood.

The minimum Fe value was 0·317 grammes and the maximum Fe value 0·571 grammes per 1,000 c.c. of blood respectively.

G. B. B.

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[**Scrotal Hernia accompanied by the Prolapse of the Bladder in a Stallion.** Schubin. *Tierärztl. Rdsch.* xxxvii, 696-697.]

The subject, a 1½-year-old stallion, had, according to the owner's statement, had a swelling in the scrotal region from birth. The patient suffered from phimosis, and during the last six months micturition was abnormally frequent. The stallion was castrated by the "covered" method under general anæsthesia, and was found to be a left cryptorchid. Upon opening of the hernial sac, the bladder was found to fill the cavity completely, and there were numerous adhesions. It was replaced into the abdominal cavity. The patient made an uneventful recovery, and the phimosis was successfully treated surgically a fortnight later.

H. F.

Reports

CITY OF JOHANNESBURG

The Annual Report of the Director of the Abattoir and Livestock Market Department for the year 1930-1 demonstrates the vast amount of commercial and public health work which the staff of that department carry out under the supervision of the Director, Colonel J. Irvine-Smith, C.B.E., V.D., J.P., M.R.C.V.S.

The turnover in the livestock markets was approximately £3,853,070. The total number of animals passing through these markets was 1,296,617 and the total number of animals slaughtered in the abattoir was 623,377, comprising 110,103 cattle, 427,590 sheep, 12,665 calves and 73,019 pigs.

It is interesting to note that the number of animals slaughtered in the abattoir shows a slight increase each year. The statistics of condemnation show that 56 bull, 705 ox, 348 cow, 237 sheep, 66 calf and 2,197 pig carcasses were totally condemned, together with a large amount of offal, and the diseases affecting meat and offal which are given as the cause of condemnation are very similar to those met with in this country except that tuberculosis, which is the chief cause of condemnation with us, is of secondary importance in bovine carcasses to such conditions as abscesses, decomposition, *Cysticercus bovis* and extensive bruising, and to *Cysticercus cellulosæ* in pork.

The total amount of meat seized and condemned during the year was approximately 713½ tons, and a comparison of the amount of meat condemned prior to 1910, when the abattoir opened, and since that date is given. This serves to show that the amount of meat condemned increased out of all proportion to that condemned previous to the opening of the abattoir, and this is in accord with our experience in the concentration of slaughter in this country.

An Abattoir Livestock Indemnity Fund is available for any owner desirous of insuring his animals against condemnation after slaughter at the abattoir.

There is also a Quarantine Market and 31,160 animals passed through during the year, but the report does not state for what specific purposes this market is in existence.

New legislation was proposed during the year in the form of the Cattle Improvement Bill and the Humane Slaughter of Animals Bill, which were introduced into the House of Assembly. Colonel Irvine-Smith has taken a prominent part with members of his City Council and representatives of the Associated Municipalities in obtaining the best measures applicable to the existing conditions, but neither of these Bills had finally passed the House of Assembly at the time of writing the report.

In August, 1930, the Director designed and installed ten improved cattle stunning pens and races at the cattle slaughtering bays, plans of which are given in the report, showing how the animal is moved on a trolley into the slaughter hall after stunning in the pen. The Public Health Committee reported to the Council at its meeting in December, 1930, that "The Johannesburg City Abattoir is the only abattoir in South Africa complying with and conforming to all conditions laid down in the Humane Slaughter Bill which was before Parliament last Session, *i.e.*, bovines are driven one at a time along a race into a pen, where they are stunned by means of a mechanically-operated instrument, and animals killed under religious rites are killed in accordance with these rites."

"We recommend:—

"(*a*) That the Council records its highest appreciation of the zeal displayed by the Director of Abattoir and Livestock Market (Colonel Jas. Irvine-Smith, C.B.E.) in designing and installing the improved cattle stunning pens at the abattoir.

"(*b*) That in addition to thus recording the Council's sincerest thanks the above report and resolution (*a*) be conveyed under the Seal of the Council to Colonel Jas. Irvine-Smith, C.B.E.

"Resolved: That the recommendation of the Committee be adopted."

The other portions of the report deal with measures taken to prevent the spread of foot-and-mouth disease, the veterinary treatment of animals and inspection of dairy cows.

The average number of animals in the service of the City Council of Johannesburg during the year was as follows:—mules 1,854, horses 23, oxen 24.

It is mentioned that shoulder, spavin, and contracted tendon lameness, sore backs and knee abrasions were the most prevalent conditions met with, and it is pointed out that there is difficulty experienced in obtaining mules with plenty of bone substance for municipal service owing to the decline in breeding of heavy draught animals. Worm infestations were the most common disorder encountered in animals at the zoo.

Under the veterinary inspection of dairy cows the report states: "A recent public health reform in South Africa is the institution of veterinary inspection of dairy cows. The Johannesburg Municipality provides for the regular inspection of dairy cows and the bacteriological examination of its milk supply." The report states that 8,869 cows were examined for tuberculosis of the udder and other diseases and four cases of udder tuberculosis and a list of the other diseases encountered is given.

The report shows progress in Veterinary Public Health work and evidence of an abattoir functioning successfully. W. T.

ANNUAL ADMINISTRATION REPORT OF THE ARMY VETERINARY SERVICE IN INDIA 1930-31

The average animal strength of the Army in India, including chargers and animals in remount depôts and military dairy and grass farms, during the year was as follows:—

Horses	32,881
Mules	30,908
Camels	4,128
Cattle	8,257
Donkeys	131
Elephants	1
Total	76,306

On the whole there was a reduction of incidence of disease and injury on the previous year, excepting in the case of respiratory sickness. Influenza prevailed somewhat seriously, 10,546 cases being reported; and strangles prevailed to the extent of 1,428 cases. The branches of the Service in which influenza chiefly occurred were British Cavalry 1,137, Indian Cavalry 3,558, R.F.A. 2,228, R.H.A. 332, Signal Units 326, Mule Companies and Depôts 309, Babugarh Remount Depôt 933, and Saharanpur Remount Depôt 409. The chief centres of strangles were the young stock depôts of Mona (678 cases) and Sargodha (638 cases).

As the report deals very fully with curative and preventative measures in respect to these diseases, and as such form an important feature of veterinary procedure, a brief recital will be found of interest.

Influenza made its appearance in the Northern Command in October, 1930, and spread rapidly throughout the country, the Madras district escaping with a few cases only. The disease for the most part was benign in type. A serious form occurred amongst the horses of the Cavalry Brigade and Field Artillery units at Meerut, where 22 cases showed symptoms of acute toxæmia with sudden, acute, generalised œdema and sloughing of the skin of the sheath, hocks and heels, eight dying with severe abdominal pain within 36 hours. Mules showed a greater resistance to the disease than horses, but the donkey stud at the Mona Remount Depôt suffered severely, 23 donkeys out of the stud of 95 becoming affected, and nine dying. In addition to the usual or ordinary remedial measures the following special treatments were used:—

(*a*) Autogenous vaccine in cases of persistent catarrh.

(*b*) Lugol's solution intravenously in cases of respiratory distress and continued rise of temperature, in doses of 50 c.cs. on the first day and 100 c.cs. on the second and third day.

(*c*) Auto-hæmotherapy in the catarrhal form,

unaccompanied by fever, 5 c.cs. of blood being withdrawn from the jugular vein in a syringe and immediately injected into the muscles of the neck with excellent results, the dose being repeated, if required, after one day's interval.

(*d*) Inter-tracheal injections, as laid down for the treatment of strangles, were used at Mona and Sargodha Remount Depôts, and consisted of 5 to 15 c.c. doses of either (1) oil of eucalyptus, guaiacol and chloroform each 2 drams, turpentine and oil of sesame each 1 oz.; or (2) iodine 1, potassium iodide 5, distilled water 100 parts. This treatment was found to be very beneficial, and two doses at one day's interval was sufficient in the majority of cases.

(*e*) Tryparsamide intravenously at the Ahmednagar Remount Depôt in the worst cases had an instantaneous effect in reducing temperature and depression.

(*f*) In the serious cases of acute toxæmia at Meerut the daily administration of 12 ounces of salt in two gallons of water by means of the stomach pump, also one grain arecoline daily and digitalis periodically, was successful.

It was found that horses and mules which had recently suffered from catarrh or strangles had a strong immunity towards influenza.

In the curative treatment of strangles the intra-tracheal medication, as above outlined, was employed, almost to the exclusion of all other methods of treatment. As an efficient prophylactic results showed that a 10 c.c. dose given immediately stock are purchased proved successful, and protection was prolonged if the injections were repeated at intervals of two or three weeks. A very complete account of the application of this method of strangles prevention and treatment is given in the February, 1932, *Journal of the Royal Army Veterinary Corps* by Major T. F. Arnold, R.A.V.C.

A strangles anti-virus prepared on the Besredka method by the Imperial Institute of Veterinary Research, Muktesar, was given a thorough trial, but results were very disappointing.

In Trypanosomiasis (surra) an outbreak in horses and mules at Wana, in Waziristan, was soon brought under control by the adoption of the intravenous intrathecal treatment with naganol. An improvement in the reduction of surra in camels has been effected by 4 gramme doses of naganol in the early stages of the disease. Early diagnosis by means of the mercuric chloride test has also been demonstrated.

Satisfactory results in the treatment of canker and bursatti by means of intramuscular injection of spleen extract have been achieved, and experiments are being continued.

J. M.

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Benefactor (20867) died at Sandyknowe, Kelso, recently. He was undefeated in the showring and the leading Clydesdale breeding sire of the past four years. He was a benefactor to the breed.

N.V.M.A. Divisional Report

WESTERN COUNTIES DIVISION*

ANNUAL MEETING AT EXETER

The 48th annual general meeting of the above Division was held at the Rougemont Hotel, Exeter, on Thursday, March 17th, when the President, Mr. H. W. Townson, occupied the chair. The following members signed the attendance book:—Messrs. H. W. Townson, W. Wright, F. T. Harvey, W. B. Nelder, E. B. D. Hall, C. Masson, L. Norman, W. G. Blackwell, R. G. Saunders, G. D. Lansley, W. Ascott, E. J. Thorburn, E. R. Edwards, W. Fyrth, L. W. Bovett, J. M. Penhale, C. Watkins, H. W. Percy, H. Fraser, P. Matthews, H. B. Kauntze, P. Fisher, R. B. Nelder, R. E. L. Penhale, J. F. Rankin, H. Keeling Roberts, R. H. Penhale and S. J. Motton. Messrs. J. E. Adams, of Kingsbridge, and H. C. Wilkins, of Crewkerne, were present as visitors. Apologies for absence were received from Professor F. T. Hobday, Major G. W. Dunkin, Colonel Head, and Messrs. C. Crowhurst, A. R. Smythe, P. W. Bloye, R. H. Smythe, Forbes, Richardson, Stephens, Roach, James, E. C. Bovett and A. G. Saunders.

Obituary.—Before proceeding with the general business of the meeting, the President referred to the loss sustained during the year by the death of Mr. Oliver, of Devonport, and by the death of Mr. Wintle, of Newton Abbot. To mark their respect the members stood for a minute in silence.

The minutes of the previous meeting were taken as read, and were signed as correct.

Correspondence.—The correspondence included a letter from the North of England Veterinary Medical Association asking for support for its practitioner candidate for election to the R.C.V.S. Council. The Division decided to support the candidate (Mr. Mitchell, of Sunderland).

Letters from the N.V.M.A. [dated December 24th (dealing with the use of prussic acid), January 8th, in connection with advertising free treatment for animals of the poor, and March 8th indicating action taken with regard to advertising by people other than veterinary surgeons] were read and considered very satisfactory.

Election of New Members.—Major Rankin, of Minehead, and Mr. G. Harvey, of Penmellyn, St. Columb, were unanimously elected members of the Division.

Nomination.—Mr. H. C. Wilkins, of Crewkerne, was nominated for election at the next meeting of the Division.

Resignation.—The resignation of Mr. R. J. Collings, of Exeter, was accepted with regret.

*Received for publication March 30th.

ELECTION OF OFFICERS

The following were elected as officers for the ensuing year:—

President: Mr. W. G. Blackwell, Exmouth.

Vice-Presidents: Messrs. H. W. Townson, H. Keeling Roberts, E. C. Bovett and Major W. Wright.

Hon. Treasurer: Mr. R. Barons Nelder.

Hon. Auditor: Mr. E. R. Edwards.

Hon. Secretary: Captain S. J. Motton.

Council of the Division: The President, Messrs. J. M. Penhale, L. Norman, C. Masson, Hon. Treasurer, Hon. Auditor and Hon. Secretary.

Representatives on Council of the N.V.M.A.: Messrs. W. G. Blackwell, R. Barons Nelder and S. J. Motton.

County Secretaries: Dorset, Major Fyrth; Somerset, Mr. A. G. Saunders; Devon, Mr. R. B. Nelder; and Cornwall, Mr. S. J. Motton.

Place of Next Meeting.—It was decided to hold the June meeting in Plymouth.

Hon. Treasurer's Report.—The Hon. Treasurer presented his annual report, a summary of which had been circulated with the agenda. Two members were named for being in arrears with their subscriptions.

It was indicated that the instruments of the Division were now to be borrowed by applying to Messrs. Fouracres at a new address, *viz.*, 91, Fore Street, Exeter.

Hon. Secretary's Report.—The Hon. Secretary's report referred to the progress of the scheme for the treatment of the animals of the poor. Since the last meeting two free treatment centres had been set up, one at Exeter and the other at Plymouth. Both were being operated in conjunction with the R.S.P.C.A.

Sixty veterinary surgeons living in the Division had been written with a view to discovering if they were willing to work a scheme of the kind, or if they were already working one.

Thirty-two had replied. It was hoped that the rest would now reply, for there was a danger of their names being omitted from the lists in course of preparation.

Cinematograph Demonstration.—Dr. Robinson, senior biologist to the firm of Messrs. Cooper, McDougall and Robertson, attended the meeting to explain the details of the Cooper cinematograph film, which dealt mainly with the parasitic diseases of cattle and sheep. After the film had been shown, Dr. Robinson referred to the work of Carpenter and Hadwen in connection with the life history and eradication of warble flies.

In reply to a query as to the damage done to wool, from the dyers' point of view, by dips, Dr. Robinson said that lime and sulphur dip had been particularly blamed in this respect, but if properly made it would not do harm. The Government Departments of most countries published formulæ for dips. Lime and sulphur was a good dip if properly made: but lime was not a pure chemical; the calcium oxide content varied, and many samples contained as little as 20 per cent., while good ones might contain 90 per cent. or more. The strength of lime, if not specified, was rather a meaningless thing. The tar acids in carbolic dips might do harm to wool if the dips were not properly made, but wool should not be damaged by any approved dip if made properly.

Lime and sulphur would kill scab parasites, but it was inefficient for the other ecto-parasites of sheep.

Votes of Thanks.—At the conclusion of the meeting votes of thanks were accorded to Dr. Robinson and his staff for the demonstration that afternoon, to Messrs. Cooper, McDougall and Robertson for kindly making the film available for the meeting, and to Mr. Townson for the very thorough manner in which he had carried out the duties of President during the year.

S. J. Motton, *Hon. Secretary.*

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY

ANNUAL GENERAL MEETING

The Annual General Meeting of the National Veterinary Benevolent and Mutual Defence Society was held at the Grand Hotel, Aytoun Street, Manchester, on Wednesday, March 23rd, 1932, at 2 p.m.

The Chair was taken by the President, W. Woods, Esq., and other members present were Messrs. J. Holroyd, G. H. Locke, J. Spruell, E. H. Curbishley, J. W. Brittlebank, A. W. Noel Pillers, A. J. Wright, C. F. Shawcross, F. Hopkin (Hon. Treasurer) and R. C. Locke (Hon. Secretary).

Apologies for unavoidable absence were received from Messrs. J. Lindsay, F. T. G. Hobday, W. Jackson Young, J. Clarkson, F. L. Gooch, and C. T. Trevers.

The minutes of the previous Annual General Meeting, having been published in the *Veterinary Record*, were taken as read.

Election of Officers for 1932

President.—It was proposed by Colonel Brittlebank and seconded by Mr. E. H. Curbishley, that Mr. W. Woods be re-elected President for the ensuing year. The proposal was carried unanimously.

Vice-President.—Mr. J. Lindsay was proposed by Colonel Brittlebank, and seconded by Mr. G. H. Locke, for this office for the ensuing year. Carried unanimously.

Council.—The following were elected as Council of the Society for the ensuing year:—Messrs. A. W. Noel Pillers, F. T. G. Hobday, J. Holroyd, E. H. Curbishley, J. H. Wright, J. Spruell, D. Imrie, J. Clarkson, F. L. Gooch, W. D. Rees, W. Shipley, W. K. Townson, L. W.

Wynn Lloyd, W. G. Burndred, G. H. Locke, S. Sumner (senr.), W. Packman and J. W. Brittlebank.

Hon. Treasurer.—Mr. Woods proposed, Mr. J. Holroyd seconded, and it was unanimously resolved that Mr. F. Hopkin be re-elected Hon. Treasurer.

Hon. Secretary.—On the proposition of Colonel Brittlebank, seconded by Mr. Noel Pillers, it was unanimously resolved that Mr. R. C. Locke be re-elected as Hon. Secretary.

Auditors.—Major J. Adamson was proposed by Colonel Brittlebank and seconded by Mr. J. Holroyd as Hon. Auditor for the ensuing year. This was carried unanimously.

After some discussion regarding fees paid to the professional auditors, it was proposed by Mr. E. H. Curbishley, seconded by Mr. Noel Pillers, and carried unanimously, that the appointment of professional auditors be left in the hands of the President.

HON. TREASURER'S REPORT

Mr. F. Hopkin, in presenting the Balance Sheet for the year ending December 31st, 1931, a copy of which had been sent to each member of the Society, mentioned that the membership had increased during that year and was now higher than at any previous time in the history of the Society.

In moving that the Report and the Balance Sheet be approved and adopted, Colonel Brittlebank stated that he considered they were highly satisfactory. Mr. G. H. Locke seconded, and the motion was carried unanimously.

NATIONAL VETERINARY MEDICAL ASSOCIATION

It was proposed by Mr. R. C. Locke, seconded by Colonel Brittlebank, and unanimously resolved, that the best thanks of the Society be accorded to the National Veterinary Medical Association for the great assistance rendered

Beneficiaries

Name.	Age.	Circumstances.	Grant.
A. A. ...	74 ...	Widow. Invalid. Income £16 per year and Old Age Pension	£1 per month
M. J. ...	79 ...	Widow. No income	£2 per month
K. L. H. ...	79 ...	Widow. Income 12s. 6d. per week from son and daughter and Old Age Pension	£2 per month
M. L. M. ...	31 ...	Widow. Four sons, eldest 9½ years. No income	£4 per month
M. D. ...	59 ...	Widow. Income 11s. per week	£3 per month
E. B. C. ...	49 ...	Widow. Two sons aged 12 and 15. Income £2 weekly	£2 per month
M. A. ...	37 ...	Widow. No income. Two children aged 13 and 11	£2 per month
M. B. B. ...	66 ...	Daughter of deceased M.R.C.V.S. Partially blind. Income: blind person, 10s. per week	£2 per month
K. E. C. ...	69 ...	Widow. Invalid. No income	£2 per month
H. T. ...	68 ...	Widow. No income	£2 per month
E. M. ...	66 ...	Widow. Assisted by son and son-in-law	£1 per month
S. Y. ...	74 ...	Widow. Income: Old Age Pension	£2 per month
M. R. ...	74 ...	Widow. Ill-health. No income	£3 per month
A. J. P. ...	60 ...	Widow. No income	£2 per month
P. L. E. ...	34 ...	Widow	Assisted to extent of £20

Defence Cases

Case.	Particulars.	Action taken.	
1. ...	Claim for alleged negligence ...	Society defended. Judgment given in favour of M.R.C.V.S.	Society paid balance of costs.
2. ...	Claim for loss of cat	Advice given	Claim not proceeded with.
3. ...	Claim for alleged negligence in treatment of dog	Society defended. Judgment given in favour of M.R.C.V.S.	
4. ...	Threatened action against member for libel damages	Advice given	Claim withdrawn.
5. ...	Claim for alleged negligence and carrying of infection	Advice given	Claim not proceeded with.
6. ...	Claim for alleged negligence of locum in treatment of bitch	Advice given	Claim not proceeded with.
7. ...	Threatened action for alleged negligence of locum in treatment of bitch	Society defended. Judgment given in favour of M.R.C.V.S.	

to the Society in the *Veterinary Record*, particularly in respect to the insertion of advertisements without charge.

ROYAL COLLEGE OF VETERINARY SURGEONS

Mr. E. H. Curbishley proposed, seconded by Mr. J. Spruell, and it was unanimously resolved that the best thanks of the Society be accorded to the Royal College of Veterinary Surgeons for the gratuitous advertisements annually inserted in the Register.

A hearty vote of thanks to the President for his conduct in the Chair concluded the meeting.

IN PARLIAMENT

The following questions and answers have been recorded in the House of Commons recently:—

PEDIGREE STOCK (IMPORTATION)

Mr. Lewis asked the Minister of Agriculture whether, having regard to the importance of encouraging individual enterprise in the improvement of our various breeds of stock of all kinds, he will consider making such arrangements for quarantine as will enable him to grant permits for the importation of foreign pedigree stock by any breeders in this country who may desire to make such importations?

The Minister of Agriculture (Sir John Gilmour): Having regard to the danger of the introduction of disease, applications for authority to import livestock for exceptional purposes are entertained only when conducted under the auspices of a recognised breed society and when shown to be of general benefit to British agriculture. I am satisfied that this policy should not be extended to apply to applications by individuals.

Mr. Lewis: Does the right hon. Gentleman realise that the unrivalled pedigree herds of this country are the creation of private individuals; and does he think that private individuals in future should be hampered in their work?

Sir J. Gilmour: If the private individuals are conducting their operations scientifically, they will be in close co-operation with the breed societies of this country, and I see no reason to suppose that they should not act through these societies.

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IMPORTED MILK PRODUCTS

Mr. Lambert asked the Minister of Health whether the regulations imposed by the Milk and Dairies Order, 1926, for the production of milk and milk products in this country are enforced in countries from whence milk products are imported into Great Britain?

Sir H. Young: No, Sir. The Milk and Dairies Order is only applicable to England and Wales. The production of milk and milk products in other countries is subject to the special laws of those countries, and milk imported into this country is subject to the requirements of the Public Health (Imported Milk) Regulations.

Mr. Lambert: Why are these conditions imposed on the British farmer and not on his competitors abroad?

Sir H. Young: There is really a misapprehension on that point. The conditions of inspection of imported milk are really more exacting and severe than they are in the case of milk produced in this country.

PIG BREEDING INDUSTRY

Major Carver asked the Minister of Agriculture if he can now state the composition of the re-organisation committee to be appointed to produce a scheme for the re-organisation of the pig-breeding industry; and what will be its terms of reference?

Sir J. Gilmour: I hope shortly to be in a position to make an announcement on this subject.

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SALARIES AND BONUS (CONSOLIDATION)

Major Mills asked the Chancellor of the Exchequer whether he has received up to the present time any request from the staff side of the National Whitley Council for the postponement of the consideration of the proposed consolidation of basic salary and cost-of-living bonus in the Civil Service?

Major Elliot: Yes, Sir. The representations of the staff side of the National Whitley Council on this subject are under the consideration of the Government.

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CIVIL SERVICE (EXEMPTIONS FROM EXAMINATIONS)

Mr. Cove asked the Financial Secretary to the Treasury whether the Civil Service Commission, in interpreting Clause 7 of the Order in Council of January 10th, 1910, excludes from the scope of this Clause posts which can be provided for by members of the ordinary parallel classes of the Civil Service; and whether it is a requirement of any exemption under Clause 7 that the qualifications in respect of knowledge and ability deemed requisite for any situation for which exemption from examination is proposed to be given must be wholly or in part professional or otherwise peculiar?

Major Elliot: Clause 7 of the Order in Council of January 10th, 1910, was repealed by Article 14 of the General Regulations under the Order in Council of July 22nd, 1920, of which I am sending the hon. Member a copy. The occasions and conditions of exemptions from prescribed Civil Service examinations are laid down in the several Section of Article 10 of these General Regulations. Section (*c*) of the Article is applicable to posts which can be provided for by members of the Civil Service, and Section (*a*) to posts for which professional or otherwise peculiar qualifications are requisite.

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WILD ANIMALS (EXHIBITION HUNTS)

Mr. V. Adams asked the Home Secretary if he will take powers to prevent the staging in this country of exhibitions of hunts of wild animals?

Sir H. Samuel: So far as any cruelty is caused or likely to be caused by such exhibitions the matter is already dealt with by the Protection of Animals Act, 1911, as amended by the Amendment Act of 1921, and Sections 1 and 2 of the Performing Animals (Regulation) Act, 1925. I am not aware that any need has arisen for fresh legislation.

Mr. Adams: Has my right hon. Friend seen reports in the Press about a lion hunt to be staged in England, and will he take steps to prohibit it?

Sir H. Samuel: If there is any offence committed under the Act, then proceedings can be taken, but proceedings cannot be taken in advance on the strength of Press reports.

Mr. de Rothschild: Will the hon. Member tell us to what party the lion belongs?

FIGHTING SERVICES (MEAT SUPPLIES)

Earl Castle Stewart asked the Chancellor of the Exchequer whether, in view of the Budget surplus in the year 1931-32 and as a measure of temporary assistance to stock farmers until such time as the Government's long-term meat policy can be made operative, he can now sanction the policy of supplying only home-fed beef to the Forces in home stations?

Major Elliot: The policy suggested would approximately double the present expenditure and cost over £600,000 a year. In present circumstances the Government is unable to reconsider its decision that the existing arrangements must continue.

DEPOSITING UNSOUND MEAT

Meat Trader Sentenced

On Wednesday, April 6th, 1932, at the Clerkenwell Police Court, before Mr. Bertrand Watson, William Francis Humphreys, meat trader, of 29, Friars Lane Place, Acton, London, pleaded guilty to two summonses of depositing on February 8th, 1932, on the premises of a wholesale meat salesman, in Charterhouse Street, E.C.1, twelve quarters of cow beef, three beef heads and tongues, and two beef hearts, which were tuberculous, and unfit for human food.

Mr. William Ricketts, in outlining the case for the prosecution, stated that this meat was seized on February 8th, 1932, by Inspector T. Penman, of the Finsbury Borough Council, from premises in Charterhouse Street, E.C.1, and was taken before a magistrate the same day and was ordered by him to be destroyed.

Mr. Ricketts stated that it could be proved that the twelve quarters of cow beef, and the offals, were from the carcasses of three cows which were taken out of a dairy in Wiltshire by the Veterinary Officer and the police of that county, acting under the Tuberculosis Order, 1925.

The cows were sent to a knacker's yard near Devizes, Wiltshire, and were there opened in the presence of the Veterinary Inspector and the police, who certified them as being affected with advanced tuberculosis. Instructions were then given to destroy the meat. It was stated that the knackerman had sold the meat for cat's meat. The meat, when seized, showed evidence of careful trimming, in order to remove traces of the disease.

The defendant, who was shown to have several previous convictions recorded against him, was sentenced to three months' imprisonment on each of the two summonses, the sentences to be concurrent.

H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price Net.	*Post Free.*
	s. d.	*s. d.*
Draft Statutory Rules and Orders, 1932:—		
Public Health, England. The Public Health (Imported Food) Amendment Regulations, March 15th, 1932 ...	0 1	0 1½

Notes and News

DIARY OF EVENTS

April 18th.—N.V.M.A. Editorial Committee, 2, Verulam Buildings, W.C.1, 4.30 p.m.

April 29th.—Ordinary General Meeting of the Royal Counties Division, N.V.M.A., at Guildford.

May 5th.—R.C.V.S. Last day for Nominations for election to Council.

May 12th.—D.V.S.M. Examination entries due.

May 19th.—R.C.V.S. Council Election Voting Papers issued.

May 26th.—R.C.V.S. Last day for receipt of Voting Papers.

June 2nd.—R.C.V.S. Annual General Meeting. V.V.B. Fund Annual General Meeting.

June 9th.—D.V.S.M. Written Examination begins.

June 13th.—D.V.S.M. Oral Examination begins.

June 29th.—R.C.V.S. Committee Meetings begin.

June 30th.—R.C.V.S. Annual Dinner.

July 1st.—R.C.V.S. Council Meetings.

July 6th.—R.C.V.S. Summer Examinations begin.

Aug. 8th-13th.—N.V.M.A. Jubilee Congress at Folkestone.

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R.C.V.S. OBITUARY

Caldwell, John (late of Spilsby, Lincolnshire), at Tyneholm, Brampton, Cumberland. Graduated Edinburgh, March 30th, 1896; died April 9th, 1932; aged 62 years.

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ARMY VETERINARY SERVICE

London Gazette—War Office—Territorial Army Reserve of Officers

April 8th.—Captain E. J. Burndred, M.C., having attained the age-limit, relinquishes his commn. and retains his rank (April 6th).

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A NEW FREEZING PROCESS

"It is possible," says an agricultural paper, "that present freezing methods will be revolutionised through the new process of freezing devised by a Gisborne doctor, Dr. W. A. Bowie, and a trial shipment is being watched with the greatest interest by the industry there, according to a New Zealand correspondent. Details of the methods used are not being made public, but the N.Z. Meat Producers' Board has interested itself in the project, and some time ago a number of sheep and lambs, and a few herds of cattle were killed at the Gisborne Freezing Works by this system.

"Half of the shipment is being handled by the Meat Board, which has arranged for thorough tests in England, while complete records of the ages and so forth of the sheep have been kept.

"It is maintained that by the use of this method it is possible to land meat in perfect condition, and that the frozen article is practically indistinguishable from freshly killed meat."

SLAUGHTER OF ANIMALS BILL

The Meat Trades Journal is emphatic that "the trade cannot agree to any legislation which would place upon local authorities the duty of licensing slaughtermen, and would empower private individuals to inspect private slaughterhouses.

"The attention of Local Authorities' Inspectors should be drawn to this latter provision. It means, in fact, that the promoters of the Slaughter of Animals Bill are suggesting that the officers of local authorities are not competent to carry out the duties for which they are appointed, and that their work requires inspection by the self-appointed nominees of societies not subject to any public control."

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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THE TUBERCULIN TEST

To the Editor of the Veterinary Record.

Sir,—At the present time when our scheme for the eradication of bovine tuberculosis is so much exercising the minds of our profession, the report on the Demonstration Tuberculin Test recently carried out in Edinburgh and the discussion it invoked, as published in your issue of April 2nd, will be read with the greatest of interest and also with a certain amount of consternation.

Two of the greatest difficulties in the way of the success of our scheme are the interpretation of the tuberculin test and our lack of a decision as to which test is the most to be recommended, and until we can agree amongst ourselves on these, we are not likely to gain the general support of the stock-owners of this country. Unfortunately Mr. Gofton's and Mr. Ritchie's carefully prepared tables showing where the *post-mortem* results had not borne out the reading of the test will not simplify matters, for when such careful workers as these have had such disappointing results it will do much to weaken the faith of our profession in the double intradermal test.

For my own part, I must admit to having been at one time prejudiced against this test, but the more I have used it the more faith I have in it. I admit, however, that "doubtful" reactions must from time to time occur, for no matter what one's idea as to what is a "positive" and a "negative" result, variation is liable and occasionally perhaps the test may "let us down." Mr. Gofton is reported to have said that while not wishing to condemn the double intradermal test, in his hands it had not revealed anything which the subcutaneous test had failed to reveal. It may thus be of interest to hear of an experience contrary to this. In testing a herd which I have been able to follow up and to have been present when both reactors and non-reactors have been killed, the *post-mortem* results of the intradermal tests have so far, with two possible exceptions in young stock, borne out the readings of the tests. The point I wish to bring forward now is that on the first test of this herd I tested 32 cows, applying the subcutaneous and the intradermal tests simultaneously, with very interesting results. Twenty-one cows reacted to the intradermal test and only fifteen to the subcutaneous. All subcutaneous reactors were positive to the intradermal test, so that six cows were positive to the intradermal and negative to the subcutaneous. *Post-mortem* examination on the six cows concerned carried out at varying intervals after the test revealed definite macroscopic tuberculous lesions *in every case*. I must leave your readers to decide whether or not these affected cows would have been considered negative to the subcutaneous test had it been used alone, or whether the intradermal injection could have adversely influenced the subcutaneous test.

Yours faithfully,

D. S. Rabagliati.

Veterinary Department,
County Hall,
Wakefield.
April 4th, 1932.

Diseases of Animals Acts, 1894 to 1927

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
Period March 16th to 31st, 1932	No. 22	No. 22	No. —	No. —	No. 3	No. 3	No. 10	No. 87	No. 39
Corresponding period in 1931	19	21	1	46	9	14	5	77	25
1930	26	27	—	—	12	15	6	115	51
1929	18	19	1	103	15	36	12	57	29
Total January 1st, to March 31st, 1932 ...	117	146	1	67	61	107	112	536	232
Corresponding period in 1931	139	151	5	515	60	102	135	342	122
1930	130	136	—	—	97	147	226	644	253
1929	123	137	20	1,804	107	207	268	314	133

Note.—The figures for the current year are approximate only.